

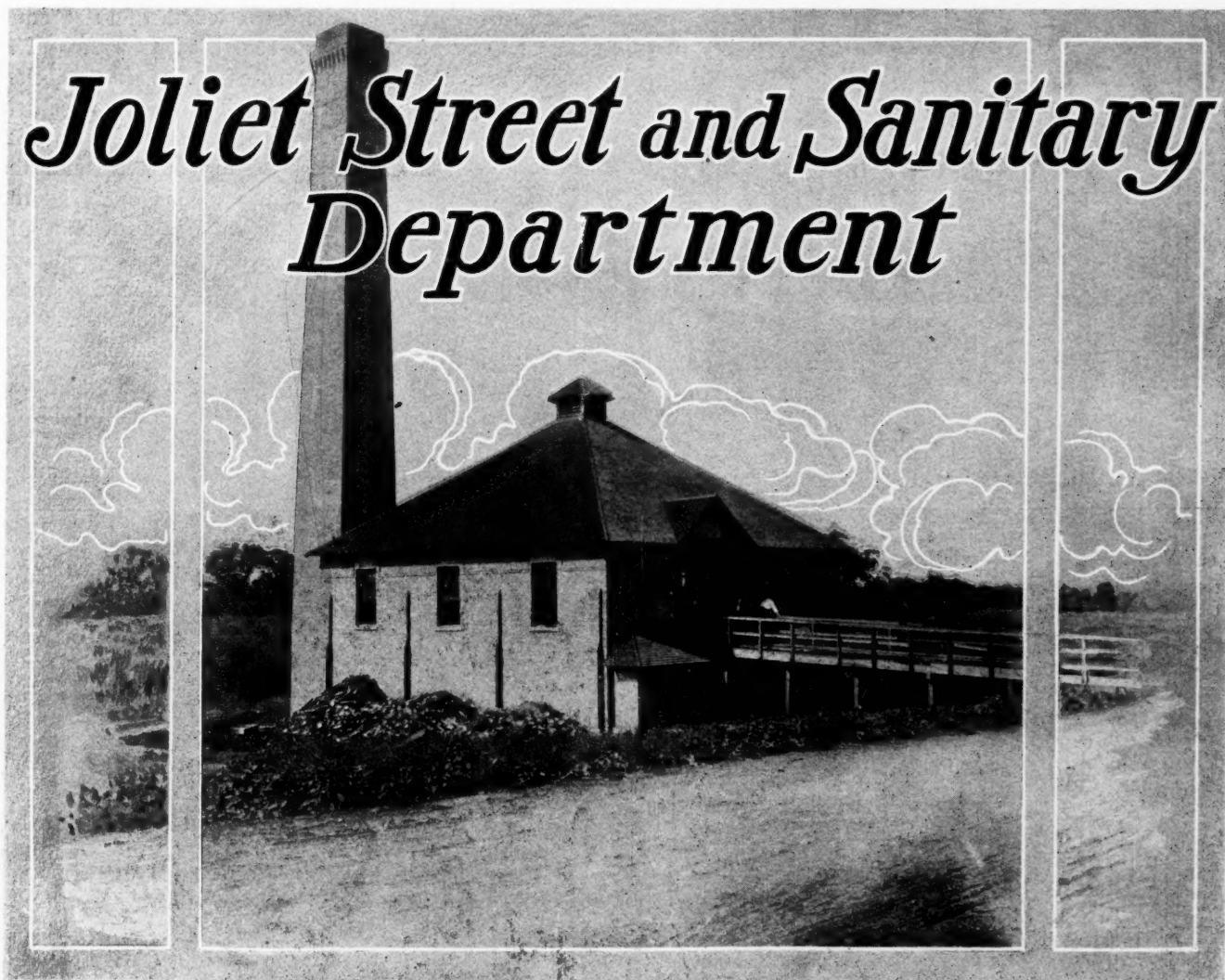
Municipal Journal And Engineer

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NEW YORK, MARCH 10, 1909.

No. 10

Joliet Street and Sanitary Department



GARBAGE CREMATORY OF JOLIET, ILL.

JOLIET, ILL., a city of 45,000 population, has an unusually complete Street and Sanitary Department. The city owns and has placed under this Department extensive yards and barns, and twenty-five horses, together with an equipment of carts, wagons, etc.

The Department employs this outfit in removing street sweepings, garbage and other refuse and in hauling material for road work. The streets are all swept by hand and the material thus collected is deposited on dumps in low areas. Ashes and similar unputrescible refuse are used for filling in these same areas. Waste

paper is burned either at the dumps or in the garbage crematory. The Street Department also looks after repairing of the pavements.

The city budget for 1909 appropriates a total of \$53,565 for this Department, the items of which are given on the following page.

During the month of January there was used from this amount, in addition to salary and wages, \$160.13 for street sweeping, \$516.26 for garbage collection, \$306.63 for extra teams and helpers, \$80.50 for street repairing, \$1,015.89 for street cleaning, \$430.50 for

feed for December and January, and \$191.10 for repairs, horseshoeing, supplies, etc.; a total of \$2,675.87 for salaries and wages and \$1,262.08 for other expenses.

Itemized Appropriation for 1909

Salary of superintendent.....	\$1,500	Teams with helpers.....	\$1,725
Salary of asst. supt.....	1,000	Repairing asphalt streets	500
Salary of clerk.....	780	Horse feed, 25 head.....	2,100
Salary of stable man.....	720	Horseshoeing, 25 head...	600
Salary of night watchman	600	Cart and wagon repairs...	200
General street repairs...	1,500	Barn supplies	200
Engineer for steam roller, ten months	750	Painting bridges	500
Coal, oil and repairs for steam roller	250	Repairing catch basins and manholes	200
Cleaning catch basins and manholes	800	Collecting garbage and cleaning alleys	5,500
Two repair men.....	1,085	Two crematory men.....	1,085
Cleaning brick and asphalt streets.....	14,500	Coal and coke (crematory)	300
Collecting street sweepings	2,170	Crematory supplies and repairs	250
Cutting weeds.....	400	One buggy horse.....	200
Reflooring bridges.....	2,000	300 feet 2½-inch hose...	150
Reflooring bridges and repairing	500	First ward fund.....	1,800
Slough drain repairs...	500	Second ward fund.....	1,300
Tools	200	Third ward fund.....	1,500
Contingent	1,000	Fourth ward fund.....	1,300
		Fifth ward fund.....	1,300
		Sixth ward fund.....	1,300
		Seventh ward fund.....	1,300
			\$53,565

During the month 1,146 tons of ashes and refuse were hauled to the city dumps by city forces and 308 tons by hired teams; 576 loads of street sweepings also were hauled to the dumps, and 158 tons of garbage were hauled to the crematory.

The crematory was built in 1900 by the Dixon Company on a plot of seven acres located 1½ miles southwest of the city. This remote spot was chosen because

of anticipated nuisance; but the long haul has greatly increased the cost of garbage disposal and no nuisance is to be detected at the plant. The land cost \$1,800, the brick building \$2,200 and the furnace itself \$8,616, a total of \$12,616.

The building is a two-story brick structure about 50 feet square, with a brick stack about 60 feet high. The second floor is nearly level with the adjacent road, so that carts can drive directly onto it. Scales are placed just outside the entrance where the loads are weighed. One-horse, two-wheeled carts are used, with metal bodies which dump at the back. There are four feed holes in the floor into any one of which the garbage can be dumped directly.

The furnace extends the entire length of the ground floor and occupies about one-fourth of its width. The garbage is dumped onto a series of brick arches 8 inches wide and spaced 8 inches apart. These arches are first covered with boards, old papers or other material which prevents the garbage falling directly onto the fire and gives it an opportunity to dry out. As the garbage dries the boards or paper are burned up and the dried garbage drops on to that which is burning on the grate beneath. A coal fire is maintained near one end of the furnace, the heat from it passing the entire length of the same. The entire furnace is enclosed in sheet metal.

The plant has never been worked to its full capacity so that it has not been determined what this is. Two men are employed in its operation. During January



DIXON CREMATORY, JOLIET, ILL. VIEW OF TIPPING FLOOR

of this year the city carts delivered 200 loads of garbage having an average weight of 1,585 pounds, making a total of 158 tons. In addition, merchants delivered three tons of decayed fruit, rubbish, etc., making a total of 161 tons cremated, together with a small amount of paper, 24 dogs, one horse and one calf. In the operation, 42 pounds of coal were burned for each ton of garbage, which cost \$3.00 per ton, making the cost of fuel 6.3 cents per ton of garbage. The cost for labor at the plant was \$87.50 or 54.3 cents per ton. The total cost per ton was therefore 60.6 cents. The tons of garbage disposed of was considerably less in January than the average for the year, while the labor is not increased at any time; consequently the unit cost for the year would be less than that just given. If 15 per cent be added for interest, depreciation and other fixed charges, figured on the cost of the plant exclusive of land, the total January cost would be \$1.445 per ton. This figure is higher than that guaranteed by a number of recent plants; but as the January amount was below the average, as explained, and the capacity of the plant was considerably greater, the officials of Joliet appear to be satisfied and consider that the results obtained are well worth the cost.

SEWAGE PURIFICATION IN OHIO

At the time of the writing of the last published report of the Ohio State Board of Health, which has just been published, there were in that State forty-six sewage disposal plants, twenty-three of which were municipal and twenty-three institutional. In addition, proposed plans for some fifty other municipal plants had been approved by the State Board of Health.

The principal municipal plants were those at Alliance, Ashland, Canton, Clyde, Delaware, East Cleveland, Fostoria, Geneva, Glenville, Kenton, Lakewood, London, Mansfield, Marion, Oberlin, Plain City, Shelby, Westerville and Xenia.

The amounts of sewage treated in various plants ranged from an average of 18,000 gallons per day at Kenton to 2,500,000 gallons at Canton. The sewage is collected and brought to the plants by the separate system in all but five cities, two of these having both separate and combined systems. The sewage is pumped in East Cleveland, Fostoria, Geneva and a part of Mansfield. Grit chambers are used in seven plants, their capacity varying from 0.14 hours flow to 4.2 hours flow; the average linear velocity across the same in m.m. per second varying from 0.8 to 9.4.

The sewage is screened in six instances and receives a preliminary clarification in all plants except that of Fostoria; this being in the nature of chemical precipitation in three cases, septic tanks in eleven cases, sludge boxes or pits in four cases and reservoirs in one case. The chemical precipitation tanks vary in capacity from 1.8 to 6.7 hours' flow; the septic tanks from 1.5 to 24 hours, and the sludge boxes or pits from 0.5 to 0.67 hour's flow.

All the plants filter the sewage except Alliance and

Canton; and Fostoria, Glenville, Kenton, Marion and Westerville treat the effluent on secondary filters also. The preliminary filters contain sand as a filtering material in four cases, cinders in one case, gravel in one case and land in one case; contact filters are used in seven cases and strainers in three cases. The sewage is applied by automatic dosing apparatus in Geneva and in Kenton, but in none of the other cities. The filter material used in the contact beds is coke in three cases, cinders in three cases and stone in one. The rate of filtration through the sand filters varies from 68,000 to 292,000 gallons per acre per day, through the contact filters from 200,000 to 2,500,000 gallons per acre per day.

The effluent from both of the plants which do not filter the sewage is putrescible, as is also that from one of the contact filters and from the gravel filter. The stream below where the effluent enters is bad in each case where the effluent is putrescible, and in only those cases.

The cost of the various plants differs greatly, when calculated either per million gallons or per capita. This difference is in part explained by the widely different conditions in the several plants and the great variety of design; also by the relative availability of filtering material, where filters are used. The capacities of the plants are in almost every case less than they should be to allow for possible growth, being barely equal to the present sewage flow in twelve instances of the twenty-eight principal plants, but 25 per cent greater than the present flow in seven plants and more than double that capacity in two plants only. In seven plants, however, the capacity has already been exceeded by the sewage treated, this being in one private plant 7.6 times the capacity. The cost per capita for installation varies from 62 cts. to \$40, the former being chemical precipitation followed by land treatment, and the latter being fine grain sand filters with no preparatory treatment. Moreover, the former is for a population of 4,000, the latter for a population of 150 only. Taking only those treating the sewage from 1,000 population or more, the average per capita cost is \$6.98.

The cost of operation ranges from \$1.19 per million gallons for the small plant at Clyde to \$47 for East Cleveland, where the enforced aeration process was used until the plant was abandoned. Similarly, the annual per capita cost based on the total population ranged from 3 cts. at Lakewood to 78 cts. at East Cleveland. Regular caretakers are employed at ten of the municipal plants. In some cases the cost of labor is very small, as at Clyde, where it is but \$120 a year, while at others it is considerable, as at East Cleveland, \$3,943, and Mansfield, \$2,800.

The proper management of sewage purification plants is equally as important as their design. Poor results from plants in operation, due to official indifference and ignorance of the principles of successful operation, suggest that they should be subject to frequent inspection and that a central authority should have power to control the operation of plants already built as well as to approve plans proposed for new construction.

WATER FILTRATION AND SEDIMENTATION

Settling Reservoirs in France and England, Giving Tortuous Movement—Mechanical Filters of the Jewell, Bell and Candy Types—Puech Method of Filtration—Comparative Costs and Details of Operation

In a paper presented in January before the Institution of Mechanical Engineers (England), Mr. John Don reviewed the subject of water purification in a very comprehensive way; and the Institution has published an excellent abstract of the paper, from which we select the following, as of special interest to American Water Works Superintendents and Engineers.

SETTLING RESERVOIRS

It is usual in America to have three or four compartments arranged either in a rectangular form or in a crescent. From the raw-water basin the flow takes place over a dividing wall into the next, and so on. At the Paris water works of the Compagnie Générale, the settling tanks are so constructed as to induce continuous and progressive sedimentation. The process here is threefold. First the path of the water lies through a series of narrow troughs disposed in zigzag form, in which the heavier particles are thrown down. Following the troughs comes a sequence of larger compartments and finally decanting basins, and in both of these the alternating left to right and also up and down movements induce still further precipitation. The combined effect of these slow and regulated and tortuous

movements is that the sedimentation is more rapid than if the water were left stationary. It is also conducted within a much less area and with far less depth than would be necessary if mere stagnation were depended upon to produce a like result.

Notable for its ingenious construction is the Sunridge Park covered reservoir, which is laid out in concentric channels. From the plan it will be seen that the water circulates first in one direction and then backwards in the next conduit inwards. There is a slight fall from the periphery to the center, where the outlet is placed.

The assurance of the water engineer that this reservoir as well as those of similar construction at Eltham and Knockholt "work admirably," may be accepted as good evidence that the principle of their construction is sound.

MECHANICAL FILTERS

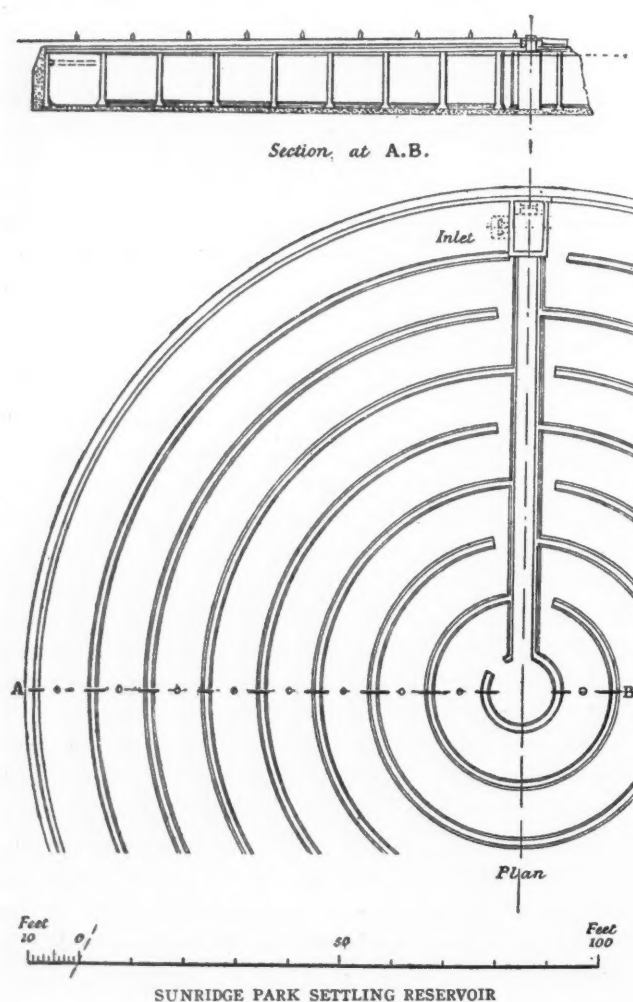
In order to estimate the relative and comparative merits and demerits of the several forms of improved and mechanical filters which it is intended to review, it will be necessary to formulate a standard of purity of the filtrate, which has received authentic recognition from a quarter worthy of respect. The following, so far as concerns the standard of purity, may be regarded as essential:

- (1) The number of bacteria per cubic centimeter to be under 100.
- (2) The water must be clear and free from taste and smell.

It is well known that on the Continent much less attention is paid to the chemical analysis of filtrates than in this country. In Britain, water containing more than 0.1 part of albumenoid ammonia per million would be regarded as suspicious. The presence of nitrites is also looked upon with suspicion in this country. It is generally accepted that upland surface water should not hold more than 0.3 to 0.5 parts of nitric and nitrous nitrogen together per million. Seine water contains on the average 1 part per million of nitric nitrogen and traces of nitrates. There is a difficulty in prescribing a general standard of purity based on chemical constitution merely. A knowledge of local circumstances bearing on the area of catchment is a *sine qua non* if the analysis is to be made the test of potability. The only satisfactory test of the efficiency of a filtering plant which is generally available would seem to be that which the German authorities rely upon, and which is largely depended upon in France and Belgium, namely, the bacteriological analysis.

Jewell Filter.—In comparison with slow sand filters, Jewell filters possess the following advantages:

- (1) Capacity to treat very turbid waters and to remove color.



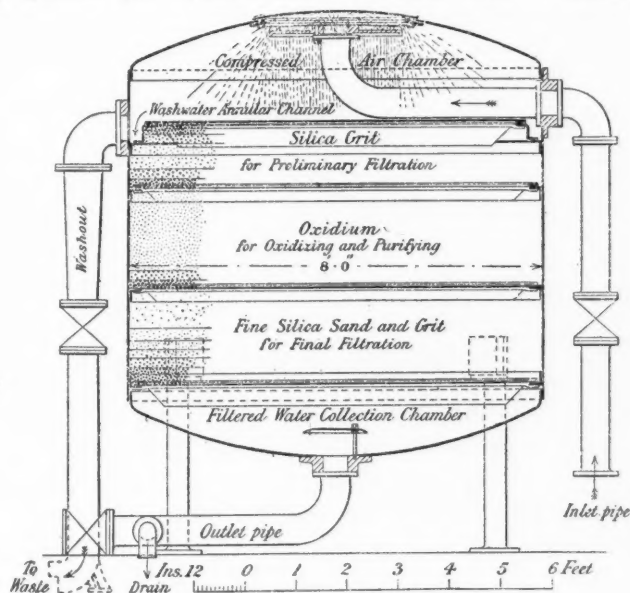
(2) Occupy a relatively insignificant area of ground.

(3) Freedom from risks of objectionable growths, and from the tastes and odors they impart.

(4) Rapidly and easily and cheaply cleansed, without risk of contamination by workmen.

Bell Filter.—Very similar to the Jewell filter in its leading principles is the Bell filter. The precipitant employed is the same, and the device for washing the sand when it becomes clogged is only a little more elaborate than that of the American invention. Not only is filtered water forced upward from below, but the revolving arms which stir up the sand are hollow perforated tubes which receive a further supply of pure water from above by way of the revolving shaft, and discharge this in fine streams among the filtering material. The holes in the hollow wash arms are protected when not in use by an automatic back-pressure valve.

In the American filter the head varies from 6 to 14 feet; that is to say, it does not exceed a pressure of 7 pounds per square inch. The Bell filter is usually



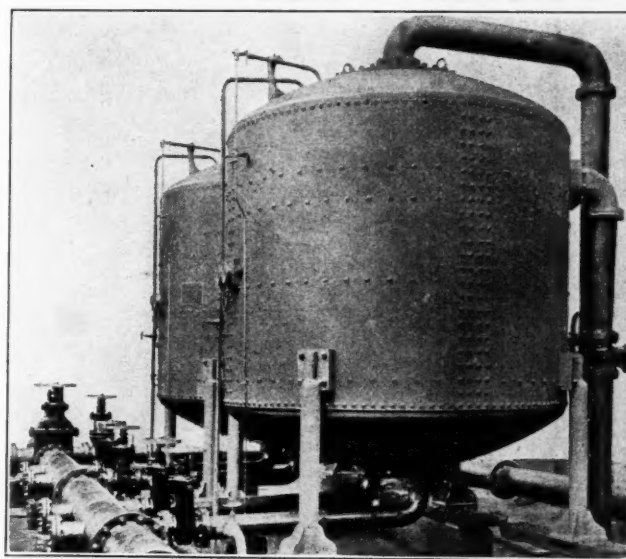
SECTION OF A CANDY FILTER

worked under a pressure far in excess of that limit. Pressures of 30, 95, 120 and 300 pounds per square inch are employed at Bury, Crewe, Bolton and Linwood, respectively. But the filter works with a less powerful head if needful. Messrs. Bell affirm that the consolidation of the granulated quartz in their filters owing to the high pressure does much to perfect the efficiency of the apparatus.

The Bell filter possesses all the distinguishing traits which mark the efficiency of its American rival. It removes peaty acids when these are present. It deals effectively with fine silt. As a result of bacteriological analyses of its effluent, as tested at Banbury by Professor Frankland, the filtrates were pronounced to be "of a very high degree of bacterial purity," the bacillus coli being reduced from 10 per cm³ to 1 in 10 cm³.

Reeves Filter.—This device differs little from the Bell filter. Coagulants may be brought into use if so desired. The filtering material is crushed quartz, and the size is graded, a layer of finer particles being at the top and of

coarser below. The filter is constructed to act either with pressure or with a deep head of water. In the pressure variety represented (page 410) it will be noticed that the form of the filtering cylinder is that of the frustum of a cone with the wider end upward. It is claimed that this design prevents water from slipping down the sides without being properly filtered. The makers remark that the filtered water is allowed to run waste for a few seconds only. They do not state, however, that the filtrate is satisfactory as regards the bacterial content after that brief run. There can, indeed, be little doubt that in this country at least there is an absence of systematic testing of the filtrate after washing. Unless the greatest care be taken to exclude the first filterings until such times as experiment has shown that the filter will have resumed its normal efficiency, great numbers of bacteria may escape into the consumers' supply. Expert opinion in Britain inclines to the belief that a filtering viscous skin, whether artificial or natural, is the agent which plays the most important part in the



INSTALLATION OF CANDY COMPRESSED AIR AND OXIDIZING FILTERS

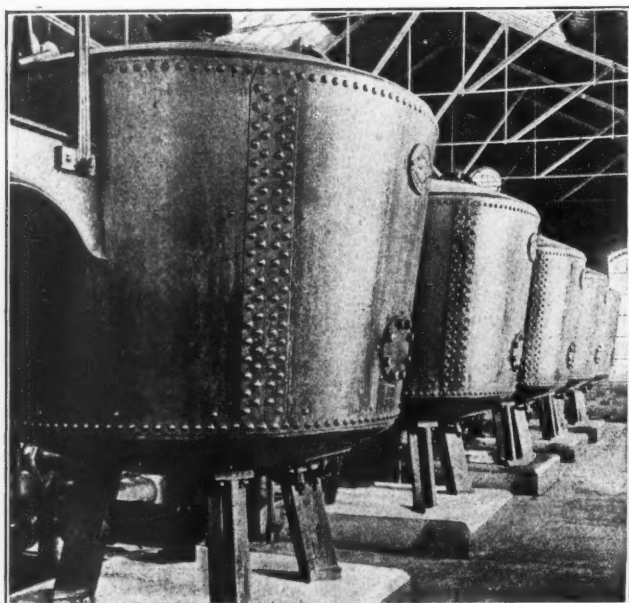
elimination of germs, so long as sand or crushed quartz is the material of which the bed is composed. It will be remembered that with the Jewell filter about half an hour was considered sufficient for the skin of precipitated alumina to establish its proper efficiency.

Candy Filter.—Against the use of coagulants there have been urged from time to time various objections, some rather fanciful, others more real. There is the question of expenditure representing an outlay of 5 shillings to 10 shillings per million gallons filtered (6 shillings on the average per grain per gallon per million gallons). It is recognized that it may be beyond the ordinary attendant of a filtering plant to determine the exact amount of coagulant that should be added under varying conditions of the raw water.

Oxidium, which is the effective medium of the Candy filter, is a porous composition of iron oxide, silica, etc., which exhibits properties similar to those of spongy platinum. Consisting largely of iron and silicates, oxidium absorbs oxygen from the air and yields it again

to organic matters suspended or dissolved in the water under filtration. Living germs are intercepted as efficiently as in any of the filters yet described. It appears that wet combustion proceeds rapidly as the water percolates. The oxygen is supplied from the pores of the oxidium, wherein it is occluded. The stored oxygen is gradually used up as filtering goes on, but it is easily renewed by emptying the cylinder and admitting air. By a simple means a large volume of air is compressed into the dome of the cylinder, so that the descending water is well aerated.

Dr. Thresh has made many analyses of the effluents of the Candy filters, and the purification in general has been shown to be admirable. Practically speaking, there is no escape for pathogenic bacteria. Albumenoid ammonia is reduced to an insignificant amount. Nitrification makes great progress in passing through the layers of oxidium. Iron salts in solution are wholly got rid of. These are conclusions which may be drawn from Dr. Thresh's investigations.

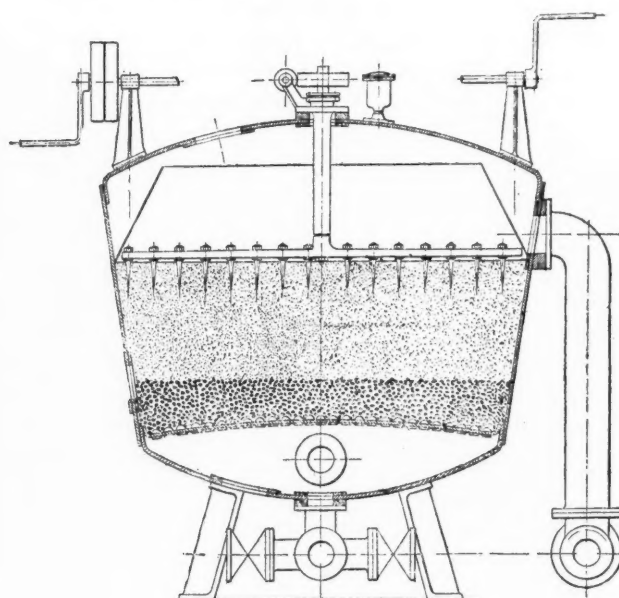


REEVES PRESSURE FILTERS AT BOLTON

Puech Filter.—The construction of the Puech filter is altogether novel. It is not, strictly speaking, a mechanical contrivance; rather is it an adaptation of the older system, in which the sediment-charged water is subjected to graded filtration. There is a series of beds in which the filtering substances range from coarse to fine. First is a battery of *dégrossisseurs* or roughing filters, with four compartments. In the first the whole of the filtering medium consists of pebbles of the size of walnuts; in the second they are comparable in dimension to hazel nuts; in the third the grade is that of beans, while in the fourth it descends to that of peas. The depths of the layers are, respectively, 12 inches, 14 inches, 16 inches, 16 inches, but these thicknesses may require to be varied according to the character of the water treated. Naturally, the water finds its way more easily through the coarser materials, and accordingly the area of the first *dégrossisseur* is smaller than that of the second, and so on. Thus the speed with which the water

percolates decreases rapidly from one compartment to another, being five times slower in the last than in the first.

It is claimed that the suspended impurities are arrested throughout the whole depth of each bed. Dr. Kemna stated in his notes upon the working of an experimental plant 10 metres square that the action of the Puech-Chabal gravel strainers was very effective as a preliminary treatment of river water. He found that most of the matters in suspension were removed, that there was a great diminution in the number of microbes, that there was a slight fall in the percentage of organic matter and albumenoid ammonia, and a considerable reduction of the free ammonia. He also discovered that the diminution of microbes and of suspended matter was largely independent of the speed, while the chemical reduction (loss of ammonia and organic matter) was inversely proportionate to the rate of filtration. These are important points well worthy of the attention of water undertakers.



SECTION OF REEVES (MATHER & PLATT) FILTER

From the gravel strainers the effluent passes on, by cascades preferably, to the next stage in the purification, the so-called pre-filter, the upper layers of which consist of coarse sand, thus promoting quicker passage of the water. Last of all comes a bed composed of materials very similar to those in the slow sand filter. This is the finishing process.

Judging from the bi-weekly reports of the Observatoire Municipale de Montsouris, at Paris, the efficiency of the Puech-Chabal system leaves nothing to be desired. The Seine water at Nanterre after treatment with this system is from week to week superior in freedom from bacteria to that obtained by other processes at Neuilly, Choisy le Roi and Saint Maur. At Magdeburg the Puech filters were applied to the purification of the water of the Elbe, which is notoriously polluted with sewage and other offensive materials in greater or less amount. Here also its success has been beyond question. A full account of the Magdeburg undertaking will

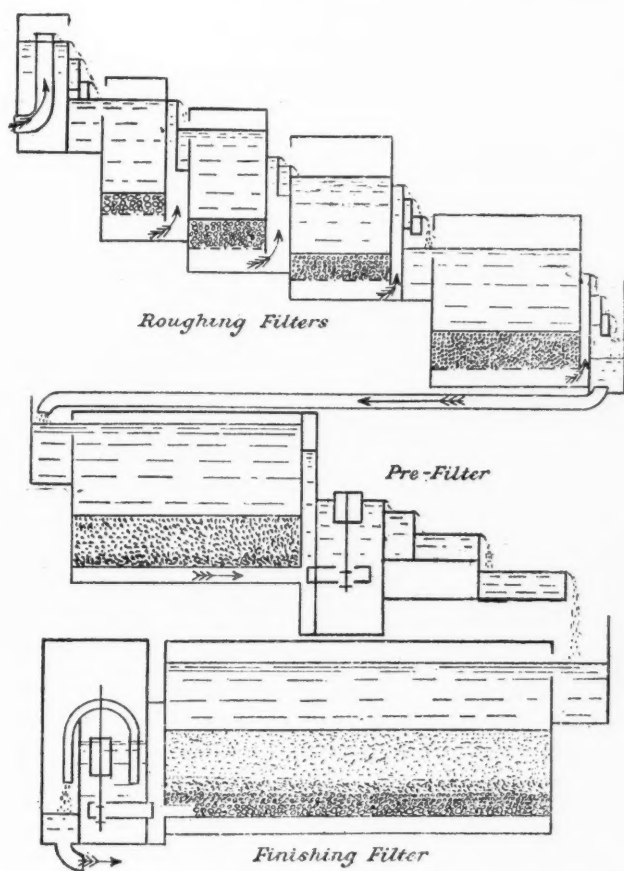
Comparative Cost of Various Filters with Regard to Capital Outlay and to Working Expenses

Unit of quantity considered: 1,000,000 gallons per diem.

No service reservoir is supposed to exist, and the cost of such is not included in the estimates given here.

	Jewell.	Bell.	Candy.	Puech.	Reeves (Mather and Platt).
Capital outlay.....	£4,500.	£4,380.	£2,220.	£7,740.	£6,500.
Filtering area.....	454 sq. ft.	603 sq. ft.	318 sq. ft.	35,000 sq. ft.	1,000 sq. ft.
Mechanical power.....	10 B.H.P.	2 B.H.P.	None.	None.	None, unless desired.
Maintenance (not including interest)	125.	105.	25.	105.	Not definitely stated.
Filter washing, how often?.....	Once or twice daily.	Once daily to once in three days.	Same as Bell.	Part weekly. Part monthly. Part yearly.	Once per day, as a rule.
Free run of the filter after washing	15 minutes.	With extra alum added, a few minutes.	A few minutes.	Time required to fill the filtering basins, i.e., a few minutes.	3 to 5 minutes.
Percentage of water required for washing	2½ to 5 per cent.	1 per cent. or less, often ½ per cent.	½ per cent.	Varies with the condition of the raw water, 2½ to 3 per cent as a rule.	About 2 per cent.
Life of the filter.....	50 years.	Equal to the life of a steel bridge.	50 years.	Equal to the life of slow sand filters.	15 years, as a minimum.
Arrangement for regulating the supply of any precipitant added.	Special regulating taps are provided working under steady head.	A self-regulator is attached.	None required.	As a rule no precipitant is employed. If necessary, a gauged tap is used.	Ball-valve regulator, or small pump from water motor on the main.

The above statistics have been supplied by the proprietors of the filters quoted.



PUECH FILTERING DEVICE

be found in the "Technisches Gemeindeblatt" of Feb. 5, 1907.

It is an open question whether the Puech filter plant is not over elaborated. No film forms upon the finishing filters, but the water in these is in summer loaded with vegetable matters which have to be scummed away by manual labor.

Neither Dr. Kemna nor Dr. Thresh seems to be satisfied that the filtering film can safely or advantageously be dispensed with. Accordingly, at Waelhem, there is to be a considerable modification of the original Puech process. There will be *dégroisseurs*, but no pre-filter. The slow sand filters will be left to do their full share

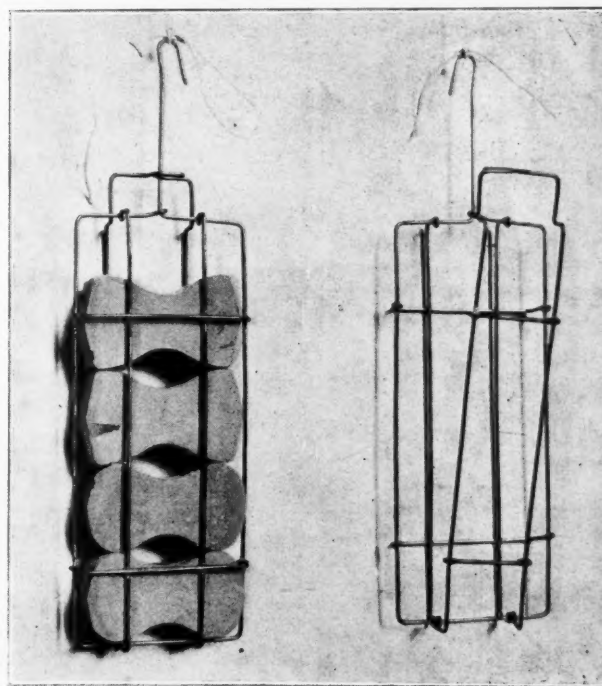
of the work. Neither will there be any aeration from bed to bed, but the strainers will be covered to exclude light and prevent growth of vegetable organisms.

An ingenious speed regulator is attached to the finishing filter, so that the rate is maintained constant.

TWO TESTING LABORATORY DEVICES

By J. E. PUTNAM, Assistant City Engineer, Rochester, N. Y.

MANY visitors to the City Engineer's Testing Laboratory at Rochester, N. Y., have expressed interest in two devices which originated in the laboratory. The first was a simple frame of brass wire made so as to open and permit the ready placing or removal of cement briquettes. The hook allows the hanging of this on a rod across the top of the tank in which the briquettes are soaked. The construction is plainly indicated by the photographs of the full and empty frames. The numbers, date of construction, etc., can be placed on a tag

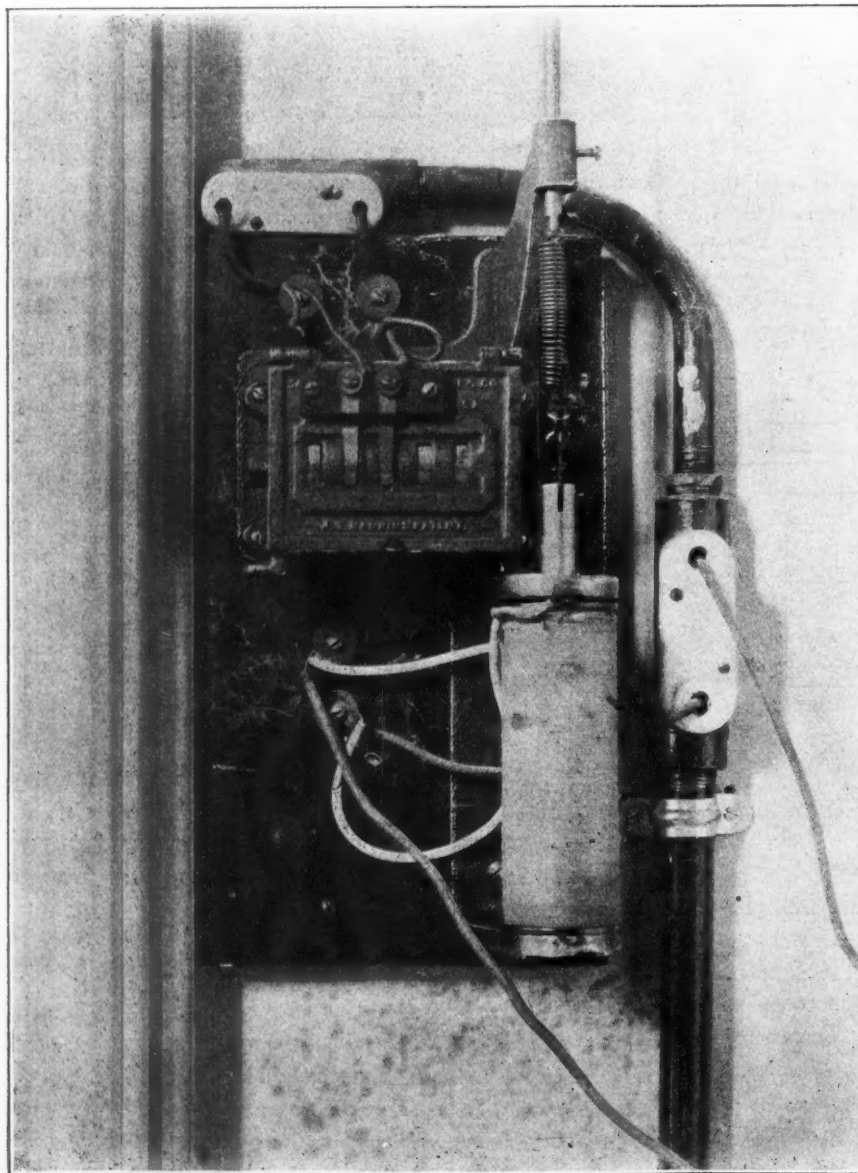


WIRE FRAME FOR IMMERSING BRIQUETTES.

tied to the frame, instead of being marked upon the briquettes.

The second is for use in the testing of paving brick in the rattler. As the standard rattler is belt driven and makes a great deal of dust which makes the slip of the belt very irregular, it seemed desirable to have a revolution counter on the machine.

As shown in the photograph, this appliance consists of a printing press counter worked by a solenoid which is in circuit with a switch which is opened and closed once each revolution of the rattler. The wheels are set by hand to zero before beginning the test. The test is ordinarily continued for 1,800 revolutions. In order to stop the machine automatically on the completion of the test two pins were placed in the 1,800 figures so that they would just make contact with the two insulated springs shown in the photo. The wires leading from these springs are connected to the ends of the wires of the release magnet on the starting box of the electric motor. The action is, therefore, to short circuit the release magnet and stop the motor on the completion of the 1,800 revolutions.



CONTRIVANCE FOR CONTROLLING PAVING BRICK RATTLER

PAVING IN THE UNITED STATES

THE table presented last week, giving the amounts of the various kinds of paving in a large percentage of the cities of the country, serves to give a good idea, among other things, of the relative amounts of the various kinds of paving in the different sections of the United States. The percentages given refer, of course, to those cities only which furnished data for the table. Macadam and gravel roads are not considered.

Percentages of Paving in Different Sections

	New England	Middle Atlantic	South Atlantic	Ohio Valley	Upper Mississippi	Lower Mississippi	Rocky Mountain	Pacific Coast
Stone block.....	52.55	27.63	19.22	3.56	2.21	1.30	7.11	3.55
Sandstone.....	.....	1.72	.....	5.46	1.73	.....	.....	4.70
Cobble.....	9.55	1.61	33.07	.....	0.26	.....	.....	.....
Bitulithic.....	8.45	0.97	2.02	0.23	0.60	3.98	4.69	12.84
Brick.....	8.07	21.64	11.54	48.14	38.55	18.82	2.65	10.95
Asphalt.....	5.25	44.28	22.18	22.99	30.96	18.45	82.63	60.84
Hassam.....	2.17	.....	.....	.....	.....	.....	.....	0.02
Wood block.....	1.15	0.25	0.60	18.63	22.56	0.75	2.17	1.07
Bit. macadam.....	0.65	0.28	.....	0.04	2.22	.....	.....	3.64
Asphalt block.....	0.31	0.73	6.27	0.80	0.74	.....	.....	.....
Concrete.....	.....	.....	.....	0.07	0.14	0.11	0.75	.....
Petrolithic.....	.....	.....	.....	.....	.....	.....	.....	2.39
Others.....	11.85	0.89	5.10	0.08	.....	.....	.....	.....

A similar analysis was made in our issue of March 4, 1908, of the data collected at that time, and a comparison of the two may be of interest. In the New England States the only change in relative order is that bitulithic and brick have changed places. In the Middle Atlantic States brick and stone block have exchanged places, as have bitulithic and cobble. In the South Atlantic States brick led last year, with stone block, asphalt block, bitulithic, asphalt and wood block in the order named. In the Ohio Valley the order is changed in that asphalt has moved ahead of stone block, and wood ahead of bitulithic and asphalt block. In the Upper Mississippi Valley bituminous macadam has supplanted stone block in third place, and asphalt block and bitulithic have changed places. In the Lower Mississippi Valley asphalt has displaced bitulithic in second place. In the Rocky Mountain States there is no change in the order. In the Pacific Coast States bituminous macadam went from third to fifth place, and petrolithic, wood block and Hassam have been added.

New Practice in Road Construction

THE article under this name, contributed to the March 3 issue by James Owen, contains a statement which Mr. Owen wishes to correct. The statement, on page 361, that "tar at the rate of one-half gallon is spread," should properly read, "from one-half to one and one-half gallons of tar, according to thickness, is spread."

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NEW YORK, MARCH 10, 1909

CONTENTS

Joliet Street and Sanitary Department (Illustrated).....	405
Sewage Purification in Ohio.....	407
Water Filtration and Sedimentation (Illustrated).....	408
Two Testing Laboratory Devices (Illustrated).....	411
By J. E. Putnam, Associate City Engineer, Rochester, N. Y.	411
Paving in the United States.....	412
New Practice in Road Construction.....	412
Ohio Board of Health Report.....	413
Short-time Pavement Guarantees.....	413
Metering Public Buildings.....	413
Paving Number Errata.....	413
Concrete Paving in Bozeman (Illustrated).....	414
Pavement Repairing at Decatur, Ill. (Illustrated).....	415
News of the Municipalities.....	416
Legal News—A Summary and Notes of Recent Decisions...	422
News of the Societies.....	423
Incorporations.....	423
The Week's Contract News.....	424
Patent Claims.....	440
Trade Notes.....	440
Personals.....	441

Ohio Board of Health Report

IN our issue of July 1, 1908, we published an abstract from the report which had a short time previously been prepared by Chief Engineer Pratt, of the Ohio State Board of Health. The full report has just been issued and is without question a more complete description of the water and sewage purification plants of Ohio than has heretofore been given of any State, except Massachusetts. The matter is excellently well presented, and is accompanied by photographs and plans of all the plants in the State, these numbering twenty-seven water purification plants and forty-six sewage purification. In

addition, there are given a brief report of the scope and nature of the investigations made and a summary of all the data collected, and also a supplementary report or appendix giving details of and results from experiments upon the disinfection of sewage effluents and an investigation of stream pollution by acid wastes and its prevention. There are forty-seven plates, showing the plans of the various plants, in addition to the several dozen photographs before referred to. The text occupies 770 pages.

This report shows that a most thorough and comprehensive study of the situation has been made by the State Board of Health, upon which to base future action in regulating and promoting sewage and water purification in the State. The report is a great credit to the Board and to the State Legislature, which furnished the funds for carrying on this excellent work.

Short-Time Pavement Guarantees

As has been stated several times in these columns, the general tendency during the past few years has been to reduce the length of guarantee for pavements or to omit it altogether. Toronto, Ont., fell into line by adopting, on Feb. 22, the recommendation of City Engineer Rust that guarantees on asphalt, bitulithic, granite block and vitrified block pavements be reduced from ten to five years. As Mr. Rust states in his letter to the Board of Control recommending this, the long term was originally asked in connection with asphalt pavements because very little was known about the material. "We have now," he says, "much better knowledge of the various asphalts, and nearly all city engineers have now connected with their department a chemist and a first-class laboratory, which affords every facility for making chemical tests of the various materials used in the construction of roadways. This being the case, several cities have reduced the guarantee period from ten to five years, and in some cases to one year.

"I have interviewed some of the contractors here, and they have assured me that if this period could be reduced there would be a corresponding reduction in the cost of pavements."

Metering Public Buildings

A SPECIAL Council Committee of New Bedford, Mass., has recommended that all public buildings be metered and that each department pay the water department from its own funds for all water used. We are glad to see another city falling in line with what we believe to be the only correct practice.

Paving Number Errata

OUR attention is called to two errors in the March 3 issue, one an unfortunate slip on our part, the other contained in a report reproduced by us. On page 370 the heading "Tarvia Court Decisions" should have read Bitulithic; Tarvia being in no way concerned in the litigation. In the table on page 342, the cost of macadam in Cleveland, O., is given as \$2.25, which is really the price of tar macadam. Macadam costs \$1.55.

CONCRETE PAVING IN BOZEMAN

Constructed in Ten-Foot Blocks—Surface Marked Off Into Rectangles—Details of Construction—Satisfactory, but Longitudinal Grooves Wear

THE only street paving in Bozeman, Mont., a city of about 8,000 population, consists of about 25,000 square yards of concrete pavement which was constructed last year. City Engineer C. M. Thorpe describes this pavement as follows:

There is a 14-foot concrete sidewalk and curb on each side of a 90-foot street, leaving 62 feet of roadway pavement. The crown of this is 10 inches. There is a system of double inlets to the storm sewers, so that at street intersections the pavement is held up nearly to the top of the curb.

The principal points in the construction of the pavement are these: The street was excavated and rolled with a ten-ton roller. Three inches of fine gravel was then placed on the rolled surface, except where the soil was found to be gravelly. The forms were then set. These consisted of 2 x 7-inch plank set with the top to grade and running across the street from curb to curb where there was no street railway track. Along the street railway track one side was constructed

at a time. These forms were set ten feet apart and steel headers set ten feet apart between the forms making blocks ten feet square. The foundation was then gauged to seven inches below grade, and 5½ inches of concrete deposited in every alternate space and the same well tamped. The concrete consisted of one part Portland cement and six parts natural gravel carrying sand in the right proportion. The gravel was limited to 2-inch diameter.

Before the concrete had set the top, or finish coat, 1½ inches thick, was placed thereon and troweled into the concrete. This top coat consisted of one part cement, one part crushed boulders or pea gravel and one part sand; the crushed stone or pea gravel being limited to ½-inch diameter and the sand being coarse and as clean as could be obtained.

The wearing surface was marked off into 4 x 8-inch squares with grooves about ¾ of an inch deep, made by using a plank, one edge of which was shod with an iron the shape of the groove. This marker was used by two men and pounded into the wet concrete with wooden mallets to make the groove. The surface was then roughened by the application of a brush. The grooves 4 inches apart run across the street at right angles to the curb and the grooves 8 inches apart are parallel with the curbs. The surface was allowed three weeks for setting before being opened for travel, dur-



CONCRETE PAVEMENT, BOZEMAN, MONTANA

ing which time it was covered with sand and kept wet. Expansion joints were run across the street every 100 feet, and also along the curbs. These were filled with an asphalt compound. The concrete and top coat were mixed with two Smith mixers and wheeled to place in wheelbarrows.

When the first half of the pavement was opened for travel it had a more severe test than it will ever have again, as the travel was confined to one track and the gravel for use on the other half of the pavement was hauled over it. Still, it showed hardly any wear, notwithstanding the fact that it was only three weeks old. The length of the street paved was 3,495 feet, amounting to 25,781 square yards.

The total cost of the pavement, including all items, was \$2.28, the original estimate having been \$2.40 per square yard. The brand of cement used was "Western States," costing about \$2.40 per barrel. The cost of sand and gravel was \$2 and \$1.25, respectively, and for labor, \$2.50 per day of 8 hours.

We are more than pleased with the pavement. It is not slippery and no more noisy than brick; it is easily cleaned by washing with a hose from the fire hydrants, and, with the concrete curbs and sidewalks, makes a fine-looking street. One thing that helped the committee to decide in favor of concrete pavement was the fact that we had several concrete crosswalks constructed four and five years ago, some of them by the Miracle Company, in practically the same manner as the pavement, and, as these showed little or no wear, the committee were of the opinion that the smooth pavement would not be submitted to the hard usage which a crosswalk, with soft mud on each side, might receive.

We know that there is nothing about this pavement to decay, and it will be as durable as the material put into it. I believe for the wearing surface great care should be taken to select hard, durable rock, and I believe the crushed rock is better than pea gravel. The sand should be carefully selected, hard and coarse, and enough cement to thoroughly fill the voids.

I am inclined to think that if the grooving was run at an angle of 45 degrees with the curb it might prevent the possibility of wearing into ruts which might be started by the grooves running parallel with the curb.



ASPHALT REPAIR PLANT AT DECATUR, ILL.

PAVEMENT REPAIRING AT DECATUR, ILL.

THE city of Decatur, Ill., has about eight miles of asphalt paving which has been laid at various times and has given various degrees of satisfaction. The piece of asphalt pavement which is said to have worn the best is one laid by the Barber Asphalt Paving Co. about six years ago, which has not yet needed repair. While no confirmation was obtainable, it is thought that the reason for this stretch being so satisfactory was the reported use of natural cement as a filler.

All cuts, for whatever purpose, in the asphalt paving are made by men from the Street Superintendent's office. After these have removed the asphalt in large sections, the trench is excavated by the company doing the work; after which the city department refills the trench and replaces the sections of asphalt. These men have become so expert in cutting and replacing the asphalt that only very thin joints are left, which are filled with neat Portland cement. The joint thus made is scarcely noticeable and the paving is apparently left in as good condition as originally.

Where repair is necessary to the asphalt pavement a Hooke Asphalt Repair Plant is used. (This is the same appliance referred to last week as being used by several cities.) At the smoke stack end of the Hooke plant is a tank in which the asphalt is melted. Back of that is a large pan in which the sand is dried and heated, and into which, when the sand is hot enough, the asphalt is run, the sand and asphalt being then mixed with shovels. The only criticism of the machine made by the Department is that, after a batch is completed, there is considerable delay while the next sand is being dried. The capacity is about 50 square yards per day.

The cost of the apparatus was about \$575, and this amount was saved by it during the past year in laying about 1,000 square yards. The cost of this to the city was slightly under \$1.00 per square yard. Bids were received at the beginning of the year for repair work and the lowest was \$1.88 per square yard. This shows a saving of over \$800 for the past year alone. In the repair work, asphaltic cement already fluxed was obtained from the Standard Asphalt & Rubber Co. at about \$30 per ton. Natural cement was used for filler.

The city has about one mile of bitulithic pavement laid about three years ago. This has been very satisfactory because it is noiseless and non-slippery.

There is also in the city a considerable amount of brick paving. Cement, sand and asphalt filler have been used on various streets. Asphalt has met with the greatest approval, as one street thus built has been in use eleven years. It is now required that all brick for paving must have raised letters or lugs not less than one-eighth inch high. The specifications also call for asphalt filler, which must be heated to not less than 400°. The first pouring is to be immediately followed by a second to entirely fill the interstices.

Pioneer filler has been used on about three miles of pavement and Sarco on one mile. Cement filler has been used on four and a half miles.

NEWS OF THE MUNICIPALITIES

Divers Subjects of General Interest and Their Treatment by City Councils and Officials—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

Paves Vacated Street

Altoona, Pa.—City Engineer Franz Engstrom has made the discovery that the city has been paving a small section of a street that apparently has no legal existence, and which is private property. The question was raised when the viewers appointed by the court to assess the amount the several abutting property owners would be required to pay as their respective shares of the cost of the paving began their work. The place in question is Fourth street, between Eighth and Ninth avenues, a thoroughfare which was vacated in the year 1880, and which reverted to the original owners, the chief of which was the Pennsylvania Railroad Company.

Changing Street Names

Boston, Mass.—Street names cannot be changed at a minute's notice hereafter if the bill reported in the lower house of the Legislature by the Committee on Roads and Bridges becomes law. The bill provides for an appeal to the State Highway Commission in the event of a change in the location or name of a highway or park when such location or name has been in use for 25 years or more. This measure is based on the petition of Charles Francis Adams, who seeks legislation to provide that such changes should not be effective till approved by the Commissioners.

Progress in Grade Separation

Detroit, Mich.—After a conference between the Michigan Central Railroad officials and the city, the latter represented by Alderman Owen, chairman of the Grade Separation Committee of the Common Council, and Corporation Counsel Hally, Alderman Owen announced that the railway had agreed to install grade separations this year in the northeast section of the city at Brush, John R. and Beaubien streets, involving an expenditure by the railroads of \$200,000. The Michigan Central and the Grand Trunk have a working agreement with the city, formed in 1903, to spend \$200,000 each year for grade separations on the West Side.

Year's Work of Philadelphia Highway Bureau

Philadelphia, Pa.—Chief Benson of the Highway Bureau has made his annual report to Director of Public Works Stearns. During 1908 there were laid 22.58 miles of new paving, 31.18 miles of repaving with improved pavements, 5.71 miles of macadam roadway, 1,117,236 cubic yards of grading done, 325,924 square yards of repairs to paved streets, 13,581 square yards of repairs to asphalt streets, 117,189 square yards of broken stone and 1,404,501 square yards of repairs to streets occupied by passenger railways out of the special \$500,000 fund paid the city by the Philadelphia Rapid Transit Company. Of original paving there was laid 425,812 square yards, costing \$750,000, of which the city's share was \$274,389. There were issued 16,962 permits and 802 contracts entered into.

Divides Brick Pavements into Three Classes

Topeka, Kan.—City Engineer Rogers prepared specifications dividing brick pavements into three classes, as follows:

Lower brick with cement grout and upper brick blocks with asphalt filler or combination asphalt-pitch filler.

The second class is same as first class, except sand filler for the brick blocks.

The third class is sand filler in both courses and the small brick.

The last class is like the old pavement that is crumbling away over the city at the present time.

Naming and Numbering Streets

Utica, N. Y.—City Engineer Arthur O'Brien has filed with the City Clerk a communication addressed to the Common Council in regard to the naming and numbering of streets, as follows: The matter of naming and numbering streets appears to be receiving much attention in various cities of the country at the present time, and the general custom is, I believe, to enlist or invite the cooperation of various commercial bodies, associations of physicians, the postal authorities, the publishers of the city directory, express companies and citizens generally, who may have the most knowledge of existing evils and the greatest interest in devising a proper and comprehensive system. A system prepared or recommended by the various interests enumerated above could not fail to command more respect and authority than one prepared by a single officer, no matter how carefully done, and inasmuch as any proper and comprehensive system for Utica will involve changing the names of some streets, which can only be done upon petition of a majority of the property owners on such streets (section 99 of Charter), it would seem that a general acceptance and approval by the people is a first requisite for any system. The above considerations lead me to respectfully request the Council to relieve me of the sole responsibility of this matter and to suggest that it be entrusted to a committee which will be able to command the services of the Commissioner of Public Safety, the City Engineer, the Board of Assessors or other officers of the city, and also enlist the cooperation of such outside interests as I have named.

SEWERAGE AND SANITATION

To Purify Rivers of New York State

Albany, N. Y.—The State authorities intend to devote much time to efforts to better the conditions of the streams of the State upon which municipalities have to depend for their water supply. It is the aim of the State Department of Health to have constructed municipal sewage disposal plants wherever possible and to discontinue the discharge of sewage into public streams. Legislation bearing upon this question is expected this year. Governor Hughes, in his annual message to the Legislature, recommended a thorough revision of the present laws regarding sewage disposal. "So far as sewage is concerned," said the Governor, "we should have legislation under which local communities may be compelled without undue delay to make provision for suitable disposal."

Indorse Sewage Plant Plan

Chicago, Ill.—The erection of an experimental sewage purification plant, for which an appropriation of \$10,000 was urged by President R. R. McCormick of the Drainage Board, has been heartily indorsed in a preliminary report of the Commission appointed by Mayor Fred. A. Busse and Mr. McCormick to consider the problem of sewage for the Calumet District. The primary suggestion of the Commission was for the construction of a channel connecting the Calumet Valley with the drainage canal—running from Little Calumet to the Sag—a plan already long under consideration, but blocked by litigation. This step they urged first, but declared that the efficiency of the channel would be increased greatly by the partial purification of sewage before it enters the water. The site suggested for the plant was the city's vacant property on the Calumet River at the Ninety-second street bridge.

Sewerage Commission and Building Inspector at Odds

Baltimore, Md.—A struggle between two departments of the city, which has cost the taxpayers \$9,000 and has lasted since last November, is still waging. The Sewerage Commission and Building Inspector Preston have been at odds during this time concerning the foundations of the sewage pumping station on East Falls avenue. Mr. Preston declares that the foundations of the station will not be safe unless the Commission adopts one of three alternatives he proposes instead of the plans the Commission has drawn up, and the Commission, backed by its Consulting Engineer, Frederick P. Stearns, insists that its plans are right. Mr. Preston, who has authority to demand a plan satisfactory to himself, insists that either concrete piles or caissons be sunk to hard pan or rock to support the building, or that the foundation walls be carried to hard pan or rock. The Commission contends that the piles cannot be driven to the depth Mr. Preston insists on, and declares that the specifications gave it the right to increase the depth of the foundations as much as necessary for a proper foundation, and that the tests made show that the plans provide for a sufficient depth.

River Improvement Makes Sewage Disposal Necessary

Dallas, Tex.—The city is now confronted with the most serious problem that has yet grown out of the Trinity navigation enterprise. An expensive plant for the disposal of the city's sewage and diverting it from the Trinity River is asserted to be imperative. The cost of such a plant is variously estimated at from \$500,000 to \$1,000,000. Already bad odors are coming from the waters of the stream, since their free flow has been impeded by the closing of lock and dam No. 1, 18 miles below Dallas, and the backing up of the water in the long and stationary canal pool thus formed. Captain Waldron of the Federal Government service, says the health of Dallas is also endangered, as foul conditions next summer might breed an epidemic of typhoid fever.

Prizes for Typhoid Specific

Mexico City, Mexico.—The Mexican Academy of Medicine has offered \$50,000 in prizes for scientists who will discover a means of preventing typhoid fever, one of the worst diseases which the cities of Mexico have to contend with. Twenty thousand dollars will go to the discoverer of a specific that will cure the disease, a like amount to the person discovering a serum that will kill the germs in the blood, and \$10,000 will be distributed among those who give the most aid to the winners of the first two prizes.

Mayor Moves in Consumption War

Trenton, N. J.—In view of the agitation that something be done for the relief of tuberculosis, Mayor Walter Madden has decided to appoint a special commission of 50 representative citizens, this commission to meet with members of Common Council, the Mercer County Board of Freeholders and the Board of Health for the purpose of discussing the whole subject of tuberculosis and consider ways and means of relief.

Clean-up in Alley Houses

Washington, D. C.—Health Officer William C. Woodward has assigned one of the sanitary inspectors to the special task of making house-to-house inspections in alleys, and it is the aim of the Health Department to make the alley residences as sanitary as possible. All of the sanitary inspectors do work of this kind when their time is not taken up with the investigation of specific complaints, but the work will now be done systematically and continuously. On his first day's trip the Inspector visited 106 alley houses and found 14 filthy yards and several other nuisances. Those responsible for the conditions were ordered to clean up at once.

WATER SUPPLY**City Offers Half Price for Water Works**

Argentine, Kan.—Argentine will offer William J. Buchan, who controls its water works system, \$15,000 for the plant, exclusive of the Kaw River pumping station. Mr. Buchan has offered to sell the entire plant for \$30,000. After several hours' discussion, Council, by a vote of 4 to 2, decided to offer half the price asked. Mr. Buchan will probably decline the offer.

Plenty of Water Again

Brooklyn, N. Y.—For the first time since the early part of last year the surface ponds and streams along the watersheds on Long Island are filled to overflowing. The drought of 1908, which was the most serious the officials of the Department of Water Supply have ever had to contend with, dried up these streams and ponds, so that they had to be abandoned as a source of supply. The deep wells which were sunk were tapped with the pumps and furnished an ample supply. Since the surface streams went dry the pumping stations have been working night and day, and the supply in the infiltration galleries was drawn upon. While there has always been more than enough water to supply Brooklyn and the adjoining districts, that condition was due entirely to the deep wells. Otherwise there would have been a water famine.

Cannot Compel Use of City Water

Cincinnati, O.—Assistant City Solicitor Geoffrey Goldsmith has given an opinion, upon the request of President Robert Laidlaw of the Board of Public Service, to the effect that the Union Gas and Electric Company could not be compelled to abandon the use of the canal as a source of water supply. As a result the company will not be obliged to purchase city water and the Water Department will lose a revenue of from \$60,000 to \$75,000 a year. It may be necessary to raise all water rates slightly to cover this deficiency.

Intake Well Completed

Holyoke, Mass.—The new intake well at the high service reservoir has been completed and Superintendent J. J. Kirkpatrick has begun to store the city's summer water supply. The gates letting the Fomer water into the high service reservoir were opened, and in about three months the reservoir will be filled and in readiness to supply the city during the summer. Last summer there was serious complaint regarding the taste and odor of the water. It became necessary to discontinue the supply. City Engineer J. L. Tighe investigated and found that the odor and taste were caused by the presence of the nitella, which affects only the lower strata of the water. An intake well was devised to overcome the trouble, and this has now been completed at a cost of \$800. The well is 8x8 feet, and is separated from the reservoir by stop planks that regulate the flow into it. By means of the stop plank the water can be taken into the well and thence sent through the main supply pipe at any depth of the reservoir that is desired.

Increased Pressure Breaks Philadelphia Mains

Philadelphia, Pa.—For the first time since filtered water has been used from the Torresdale filtration plant in that part of the city hitherto unsupplied full pressure was turned on February 26. This resulted in half a dozen or more breaks in the water mains. One of the largest pipes to break was a 48-inch main at Twenty-second and York streets, which poured millions of gallons of water into the street. Chief J. C. Dunlap of the Bureau of Water advises people living in the new sections supplied to continue boiling their water for three weeks longer, when it is believed all pipes will be clean. About 280,000,000 gallons a day are now being supplied to the city.

Knoxville Will Acquire Water Works

Knoxville, Tenn.—The special Water Committee of the City Council has been instructed to secure the services of an expert engineer in regard to a solution of the water question. This special committee and the regular Finance Committee were also authorized to take steps at once to sell the \$750,000 water works bonds, and the City Attorney and the committees were instructed to draft such amendatory act to the Act of 1905 that will enable the city to carry out the purposes of the act.

Louisville Soon to Have Clean Water

Louisville, Ky.—Theodore A. Leisen, Chief Engineer of the Water Works, announces that the filtration plant will be in working order by the latter part of March, and that the first of April will see the plant in full operation.

Will Meter Water for Public Buildings

New Bedford, Mass.—The joint special committee of the City Council appointed to consider the recommendation in Mayor William J. Bullock's inaugural, that the water ordinance be amended so as to require metered supplies so far as it is practical, and that each department be required to pay from its own funds to that of the Water Department for water thus supplied, has voted to recommend to the Council that all public buildings be metered by July 1.

Sue for \$1,000,000 on Filters

Pittsburg, Pa.—The T. A. Gillespie Company, builders of Pittsburg's \$7,000,000 filtration plant, have claimed \$1,000,000 damages from the city because, they claim, they were hampered in their work and were put to great additional expense by reason of interference on the part of the city officials. The city has a counter claim against the contractor for damages for failure to complete the work within the specified time.

STREET LIGHTING AND ELECTRIC POWER

Advises Increase in Sulphur Content in Gas

Boston, Mass.—The Gas Commission recently made a recommendation for a change in the present laws governing the amount of sulphur which gas may contain to permit an increase in the amount from 20 grains in 100 cubic feet to 30 grains. This change is suggested owing to the increasing difficulty in obtaining gas coal with a low sulphur content and the changes in methods of manufacture incident to the introduction of more economical processes. Recent investigations have made it appear doubtful whether in the ordinary use of gas the sulphur which it contains is as harmful as formerly supposed.

Municipal Pipe Line Proves to Be Success

Alameda, Cal.—The new municipal pipe line, which conveys fuel oil from the South Side Park street depot to the electric light plant at the south end of Park street, is proving even more of a success than was counted upon. It was planned to force the oil through the pipe with a pump, the fall being but 8 feet for the entire distance, but the 8-foot drop is proving ample to cause the oil to flow readily by gravity.

Small Towns Can Light Up

Sacramento, Cal.—Lighting districts for unincorporated communities are legalized under a bill passed in the Assembly, which aims to permit localities to organize for the purpose of lighting the streets. Provisions are made in the bill for holding of elections, levying and collection of assessments and other incidentals to a new act. Many rural districts will take advantage of this act to establish lighting districts where traffic is particularly heavy in the night time. Upon a petition of property owners, the Board of Supervisors must recognize the demand for a lighting district and call an election within one month.

Municipal Ownership Plans Abandoned for Present

St. Louis, Mo.—Bids which have been received by the Board of Public Improvements for lighting public buildings and the streets and alleys in the business district have settled all discussion of a municipal electric lighting plant in St. Louis. A new political organization had been formed, with one of its principal purposes that of advocating the municipal ownership of electric lighting plants; but the bid of the Union Electric Light and Power Company, which had the expiring contract, has settled that part of the platform. Light through arc lamps was costing the city \$97.45 per lamp per year, but the new bid almost cuts that in half, and the city is to get light for 10 years through the same kind of lamps for \$50.23 per lamp per year. Municipal ownership of several small plants, used to light a part of the public buildings, had much to do with the low bid. Four separate contracts were let for the electric lighting—one for arc lamps in the business district, another for incandescent electric lamps for lighting alleys in the same district, and two for lighting public buildings not lighted by municipal plants. The arc lamp contract, covering about 2,000 lamps, will cost \$12.25 per 1,000 lamp hours, which, on a basis of 4,100 lamp hours per year, would be \$50.23. Incandescent lamps, numbering 1,100, will cost \$4.49 per 1,000 lamp hours, or \$18.41 per year per lamp, 16-candle-power. The two contracts for lighting in public buildings—one north and one south—will cost at the rate of 3¾ cents per 1,000 watt hours. This latter is a reduction from 5½ cents per 1,000 watt hours. The charge for incandescent lamps for alleys is a reduction from \$4.79 per 1,000 lamp hours, or \$1.23 per lamp per year.

New Lights in Roadway a Success

Washington, D. C.—A new system of street lighting has been tried for the first time in the District, and is pronounced a success by Walter C. Allen, District Electrical Engineer. Seventeen arc lamps have been erected in the middle of the roadway along Massachusetts avenue, between Ninth and Fourteenth streets, and these lamps were first lighted March 1. As the plan is so far only an experiment, temporary wooden poles were erected to support the lamps and the wires are run through the trees and overhead to the lamps in the middle of the street. If the plan proves successful, iron posts will be erected in the street and neatly paved isles of safety will be built around the base of each lamp, circular in form and about 4 feet in diameter, and underground current connections provided. It is thought that the plan can be successfully carried out on the broad avenues of the city.

FIRE AND POLICE

Hits Faulty Building Risks

Milwaukee, Wis.—Truman H. Curtis, Chief Inspector of the Milwaukee Health Department, whose only son, a city fireman, was killed by a falling wall at the H. W. Johns-Manville Covering Company fire recently, with six others, has asked the Milwaukee delegation in the Legislature to promote a bill that will prevent insurance on a building that has been condemned by the Building Inspector, or in which the Building Inspector's demands for changes are not observed, and to revoke all policies now in force on such buildings. The deaths of the firemen are said to have been due to faulty buildings.

Longer Hours and Beats for Police Dogs

Brooklyn, N. Y.—As a result of the successful work of the 10 Belgian hounds doing police work in the Parkville section, their working hours have been lengthened and the length of their beats will be extended. Police records show that since the advent of the dogs, about a year ago, the number of burglaries has been reduced at least 50 per cent. They previously occurred at the rate of about three a week.

Smoke Masks Prove Valuable

Baltimore, Md.—For the first time since the smoke mask has been adopted by the Fire Department the device was put to a practical test at a basement fire in West Fayette street. Members of an engine company put on masks and ran six lines of hose to the point selected as most advantageous for fighting the fire. Although the smoke was of such a character as to put the mask to the severest test, the men experienced no inconvenience. After 30 minutes' work the fire was well under control, having been confined to the cellar.

Big Firemen Wanted for Handling High Pressure Hose

New York, N. Y.—Finding from experience that only big men can handle the new 3-inch hose lines used in connection with the high pressure system, Chief Croker has asked labor union officials to call the attention of their men to the fact that big men are now wanted in the Fire Department. Captain John W. Jennings, of No. 20, has the tallest and heaviest men composing any company in the Department. Nearly all of the 29 men are over 6 feet in height and weigh more than 180 pounds.

Police Dogs for Paris

Paris, France.—Twenty dogs have just been added to the police force of Paris, M. Leoine, the Chief, having signed an agreement with the Club des Chiens stipulating the amount of the annual subscription to be granted the club for the services of the animals. The first sum to be paid will be \$1,600. The dogs will be attached to the police divisions patrolling the Bois de Boulogne and the Bois de Vincennes. If they prove useful, others will be attached to the forces in the Montmartre, Monilmontant and Montparnasse quarters.

Change in Water Tax for Fire Protection

Pittsburg, Pa.—The present system of paying for fire protection by large concerns according to their floor space has proved so unpopular and raised such a general complaint that the Sub-finance Committee of Councils is considering a change to be based on the installation of meters with a minimum rate based on the size and number of connections with the water mains. The minimum rate to be established by the size of the connections would be assessed in the same proportion for all water used in excess of the amount provided for at the fixed rate per year. The committee was furnished with a schedule by Director A. B. Shepherd, which will probably be recommended to the Finance Committee, to be included in the water assessment ordinance this year. It is similar to rates now in vogue in New York and Cincinnati, and is graduated on a scale of \$8 per year for 3/8-inch connection to \$400 per year for a 12-inch connection.

To Change Beats Every Month

Springfield, Mass.—A new system of detailing the police officers has been inaugurated, by which the patrolmen of the three squads will take each beat in the city in rotation, being shifted to a new beat once a month. Each beat in the city will be numbered, and with the shift each patrolman will move along to a new beat, repeating the process at the end of the month. In this manner each patrolman will become familiar with every beat in the city.

Electric Pumps and High Pressure Suggested

Topeka, Kan.—Former Mayor Cofran has suggested a plan for fire protection which is being formally considered. He says it would be a waste of money to buy more fire engines, as the city cannot now use more than two near together, as the pressure is insufficient. The sinking of wells at the Harrison street station and the installation of electric pumps capable of giving a pressure of from 100 to 150 pounds per square inch is favored.

GOVERNMENT AND FINANCE**Bismarck to Have Commission**

Bismarck, N. D.—At a special election Bismarck decided to adopt the commission plan of city government, and an election of officers under the new system will be held early in April. Bismarck is the second city in the State to adopt the plan, Mandan having been under it for the last year.

Annual Town Meetings in 183 Massachusetts Towns

Boston, Mass.—The annual town meetings were held in 183 of the 321 Massachusetts towns on March 1. Under the leadership of a Moderator each town holding an election selected a Board of Selectmen and acted upon questions of local interest. The town meeting is a distinctly Massachusetts institution, the first one recorded in this country having been held at Dorchester, now a district of the city of Boston, in the early Colonial days. In many communities the license question was the issue uppermost in the minds of the voters. In other towns where the license question is never a live issue interest was centered in the election of Selectmen and the playground clause, which appeared on all the warrants.

Mayor Pays for Issuing Report

Boston, Mass.—Mayor George A. Hibbard has issued orders to Superintendent James H. Smyth of the municipal printing plant to publish, at the Mayor's expense, 4,000 copies of the Finance Commission's four-volume report of its findings and recommendations during the 19 months it was in existence. The work will cost approximately \$10,000. The Mayor has received scores of applications for copies of the report, and believes that with 4,000 copies he can supply the members of the City Council, department officials, libraries and other institutions, and still have a supply to furnish copies to many of the larger cities throughout the country.

Sells \$10,000,000 Stock at Good Price

New York, N. Y.—The Sinking Fund Commission sold \$10,000,000 city stock bearing 4 per cent interest at 101.57. The income basis to the purchaser is 3.93.

Higher Debt Limit Opposed

New York, N. Y.—The report of the committee appointed by the Legislature to inquire into the state of finances of the City of New York has been handed in. The committee urges that the debt limit of the city be not extended. The committee wishes to go on record as stating that the City of New York is not in a bad financial condition, and that all bonds so far issued are valid bonds. A good deal of space is given to the financial side of the Catskill water supply, and the fear is expressed that cost will greatly exceed the estimates. The report says that the debt limit of the city, inclusive of taxable and land liability, is \$77,511,010. The establishment of a central purchasing bureau is strongly recommended. The report declares that the city is being run under lax business methods and that there are enormous opportunities for waste outside of the chances for collusion or fraud. The committee advocates a reorganization of the accounting methods of the city in accordance with the system now being installed by the Controller in the Department of Finance. The establishment of a bureau of real estate, where all maps, books and records of the real estate holdings of the city should be kept in classified order, so that they can be found and examined by any citizen, is also recommended. Two constitutional amendments are proposed—one to permit the acquisition by the city of that portion of the State forest preserve situated in the Ashokan watershed, the other that improved methods of condemnation be adopted, applicable throughout the entire State, if practicable, or if not practicable, applicable at least to the condemnation of local property situated in the city or being acquired by the city to increase its water supply.

Pension Plan Proposed for City Employees

Buffalo, N. Y.—The Equity Club, an association of Civil Service employees, under Schedule B, including mostly bookkeepers, has proposed to the Board of Aldermen the creation of a retirement fund. It is proposed that employees contribute to the fund 1 per cent of their salaries annually. No employee is to benefit by the pension fund unless he has been in the employ of the city for 10 years, nor until he has contributed to the pension fund a sum equivalent to 2 per cent of his salary for the 10 years next preceding the operation of the retirement fund. After five years an employee may be retired because of disability on a pension of \$30 per month. The promoters of the plan estimate that in five years the payment of 1 per cent will give a fund of \$10,000, and that thereafter the annual income of the pension fund from the payments of those entitled to membership will amount to over \$3,000. An agreement exists between the clerks and other employees to be benefited by the pension fund that they will pay 2 per cent of their salaries annually if such sum shall be necessary to insure a fund sufficiently large to pay the claims.

To Classify and Standardize City Positions

New York, N. Y.—The New York Charter Commission has resolved to recommend to the Legislature the repeal of all statutory provisions fixing the salaries and wages of city employees so that hereafter all salaries and wages shall be paid at uniform rates to be fixed by the Board of Estimate and Apportionment; all employees of the city to be classified, so that equal wages may be paid for like services.

Municipal Public Service Commission Created

St. Louis, Mo.—An ordinance has been passed creating a Public Service Commission, consisting of three members, and defining its duties. The Commission will employ a secretary and have offices in the City Hall; it has power to employ attorneys and experts; hearings are to be public; it will govern all expenditures within its appropriation. It will have authority to investigate all matters connected with franchises and report to the Municipal Assembly violations of charter provisions or State laws and to recommend such ordinances as it considers advisable to protect the interests of the city. It will be the duty of the Commission to investigate rates for public services and to report its findings to the Municipal Assembly, together with recommendations regulating such charges so far as they are within the power of the city. Authority is also given to summon witnesses, administer oaths, and require the production of books.

Councilmen Convicted of Graft

Pittsburg, Pa.—After the jury had been out for nearly 53 hours, a verdict of "guilty" was returned against President of Common Council William Brand and Councilmen John F. Klein and Joseph C. Wasson, charged with conspiracy. Former Bank President W. W. Ramsey, who was indicted jointly with them, was acquitted upon the orders of the court and the request of the District Attorney. The three convicted men were charged with having conspired to secure the passage of an ordinance for the paving of certain streets with wooden blocks upon the payment of certain sums of money by a detective, posing as a wood block contractor, and his assistants. Klein and Ramsey had already been convicted of bribery in individual cases. An appeal will be taken by the convicted men.

Would Codify City Ordinances

Sacramento, Cal.—Mayor Clinton L. White has recommended that the city ordinances be codified and re-enacted. The ordinances and franchises covering the last 13 years have been compiled, and it is found that they will occupy 1,000 printed pages. The Mayor says that they can be codified and reduced in volume so as to occupy 250 pages, and that the saving in the cost of printing will pay for the cost of codification.

Would Annex Town Within City Limits

Seattle, Wash.—Senator Cotterill introduced a bill in the Senate which is designed to compel the annexation of Georgetown to Seattle. Under the terms of the Cotterill bill any incorporated town or city, wholly surrounded by a larger municipal corporation, may be annexed by the mere formality of demonstrating to the courts that such a condition exists. So far as is known, Georgetown is the only independent municipality in the world which exists in the center of another city. Seattle has grown up all around the brewery town, and hundreds of Seattle residents have to pass through another town to go to and from their homes or business. Until the closing of the poolrooms at Georgetown that city also enjoyed the distinction of being the only municipality in the world—unless it be Monte Carlo—that was supported wholly by licenses. The revenues from saloons, the poolrooms and the fines of the police court, together with similar revenues, supplied all the money the town needed for operating purposes. Georgetown has resisted every attempt at annexation by Seattle, and it is thoroughly understood that many, if not a majority, of the people in that municipality do not want to be annexed. The annexationists, however, point out that conditions soon will become intolerable, for Seattle cannot lay a water main or extend a light or power line to serve the people of the south end without getting Georgetown's permission. In the big scheme of south end sanitation, Georgetown's participation is almost necessary to prevent a piecemeal job or future unsanitary conditions in that part of Greater Seattle.

Mayor Does Not Believe in Civil Service

Philadelphia, Pa.—The annual report of the Civil Service Commission, which Mayor John E. Reyburn recently received, gave him an opportunity for another little oral essay on Civil Service. On previous occasions the Mayor frankly declared that he does not believe in Civil Service, and if he had his way would wipe it out completely. Looking at the report, he said: "I haven't read it, and don't believe I will. The Commissioners who wrote it should merely have said: 'Appropriations for our salaries were duly received,' and stopped there. That would have been all that was necessary."

Reduced Budget Breaks Record

Trenton, N. J.—The city budget for the fiscal year beginning March 1 has been formally adopted by Council. For the first time in the memory of any of the present city officials the total appropriations are less than those for the previous year. The total is \$1,300 less than for 1908.

Bond Issue That Went Wrong

Ulysses, Kan.—Later information regarding the town of Ulysses, whose citizens have apparently escaped the payment of \$35,000 issue of bonds by moving all buildings in the town outside of the town limits, is to the effect that the proceeds from the bonds were used to pay officers' salaries, and that no water works were ever built. The bonds were purchased by a New England bank.

REFUSE COLLECTION AND DISPOSAL

Refuse Wagons on Parade

Kansas City, Mo.—A review of 12 new street tank garbage wagons was recently held by the Mayor and officials of the Health Board. The wagon body, or tank, is detachable, and when filled will be lifted onto cars and hauled 15 miles to the piggery.

New Apparatus for Street Cleaners

Louisville, Ky.—Superintendent H. T. Crittenden of the Street Cleaning Department has provided receptacles for the street cleaners in the central part of the city, in which to place offal and litter. The offal will be gathered up and placed in cans, instead of being piled in heaps and allowed to blow away, as has been the custom.

Emergency in Garbage Disposal Provided For

Bridgeport, Conn.—The possibility of the discontinuance of the contract for garbage disposal with the Bridgeport By-products Company is indicated in a special appropriation of \$6,500 made by the Board of Apportionment for "garbage—special and emergency." The By-products Company is said to be losing money. It is being paid 50 cents a ton, a very low figure, on a contract that has five more years to run. The company has furnished a bond of \$10,000 for the faithful performance of the contract, and it might be better for them to forfeit that sum than to continue the contract. Anyway, the indications seem to be that Bridgeport will soon have a garbage disposal problem on its hands.

City May Charge Fees for Incineration

Seattle, Wash.—Council is considering the advisability of making a charge to contractors for garbage collection for the incineration of their garbage. The argument is that, as the incinerators are centrally located, the contractors are saving money over the former cost to them of disposal. Cement blocks are now being made from the clinker produced at the plant.

RAPID TRANSIT**Megaphones for Calling Streets**

Atchison, Kan.—With the installing of the new megaphone street announcers in the street cars of this city, Atchison has taken the lead in solving a very perplexing problem. The new device makes possible the calling out of the streets by the motormen instead of the conductors. It consists of a tube running from the front vestibule into the interior of the car, where it ends in a sounding horn. The mouthpiece on the receiving end of the tube is fixed just above the control box, so that the motorman can call into it without moving or taking his eyes from the track.

Tandem-door Cars Successful in Subway

New York, N. Y.—Basing his opinion on the operation of the specially equipped train that has been in operation on the subway for a week or two, Commissioner John E. Eustis says that the cars provided with tandem doors, two doors at each end of the car, are a success, and that their use will gradually become general on the subway. It was feared, especially by the managers of the Interborough Company, who will be put to considerable expense in providing the new equipment, that the plan of having passengers enter one door and leave by the other would not work well, owing to the proximity of the doors. It was found, however, that a very appreciable saving of time in loading and unloading passengers has been effected.

Decision Favors Three-Cent Fares

Cleveland, O.—Judge Knappen has filed his opinion in the United States Circuit Court, declaring that fare on the Woodland and West Side car lines shall be 3 cents while the traction receivership lasts. Mayor Johnson says the decision means that the old franchises on St. Clair, Superior and Payne avenues will expire next January.

Town Authorities Responsible for Grade Crossings

Providence, R. I.—State Railroad Commissioner Joseph P. Burlingham, treating of grade crossings, in his annual report says:

I am still firmly convinced that a large number of grade crossings in our State could be abolished, and that, too, without serious inconvenience to our citizens, and without great expense; but there is a feeling among the people against this; they do not want to go a few feet out of their way, and they are willing to have these crossings remain as at present. The law is such that the initiative in this matter has to be taken by the Town and City Councils, and the Commissioner is powerless to move in the matter until such initiative is taken by the Councils; and from my experience, I am satisfied that the Councils are not disposed to move in this matter, as it, of course, entails a certain expense upon the towns and cities.

MISCELLANEOUS**To Enforce Curfew Hours**

Chicago, Ill.—South Chicago has launched a crusade for the protection of its children. Ministers, saloon-keepers, business men, priests, attorneys, doctors and police have mapped out a general line of action, and a committee has been appointed to see that the work does not lag. The congregation at night of boys and girls in nickel theaters, penny arcades, fruit and confectionery stores and in public parks is considered one of the principal causes of juvenile delinquency, and to cure this evil an attempt will be made to enforce curfew hours.

All Theater Ordinances Suspended

Fall River, Mass.—Mayor John T. Coughlin recently suspended the licenses of all the theaters in Fall River until further notice. The action came as the result of facts adduced at a hearing before Mayor Coughlin and State Police Chief Jophanus Whitney. At the hearing the Rev. James E. Cassidy, rector of St. Mary's Cathedral, produced more than a dozen small boys who testified that they had been frequently allowed to enter the theaters during school hours and at night, unaccompanied by parents or guardians, and in violation of the statute laws.

Whole Water Front Owned by Private Persons

Norfolk, Va.—The Board of Control is negotiating with various local transportation companies relative to the possibilities of getting possession of some of the dock property, which at present is practically all in the hands of private corporations. The city owns no land whatever which could be converted into a dock of adequate size.

City Plans to Own Abattoir

San Antonio, Tex.—Mayor Callaghan has recommended to the City Council the construction and operation of a municipal abattoir, at which all butchers must do their slaughtering. The matter came up when a communication was read announcing that the largest and best abattoir in the city would suspend operations, and it was suggested that the city lease this building and operate it pending the construction of the proposed municipal building. The abattoir in question suspended because animals slaughtered there were inspected by the City Veterinarian and no arrangement had been made for inspection in the smaller abattoirs, a matter which seems to have been for the advantage of the butchers if not to citizens.

Much-Needed Vagrancy Law Passed

Washington, D. C.—A new vagrancy law has been included in a bill passed by Congress which supplies a serious deficiency in present legislation, inasmuch as it now authorizes the arrest and commitment to the workhouse of any person known to be a pickpocket, thief, burglar or confidence operator, without having to wait for such person to commit a criminal act to be taken in charge by the police. The new law is stringent, and ought to rid the District of Columbia in a short time of idle and vicious persons.

Corporations in Winnipeg to Vote

Winnipeg, Man., Can.—The principle that corporations should have a vote in municipal affairs has been adopted by this city after a long and bitter fight. The necessary qualifications entitling corporations the franchise are that corporations which are property owners must have \$1,000 worth of property and corporations which are tenants must be paying at least \$600 a year rental. Both classes of corporations may vote for Mayor, Aldermen and members of the Board of Control. The corporations which are property owners may vote on money appropriations and by-laws, but those which are tenants may not vote on such questions of government.

LEGAL NEWS

Summary and Notes of Recent Decisions—Rulings of Municipal Interest

RATES—INJUNCTION—CONDITIONS

Spring Valley Water Co. vs. City and County of San Francisco et al.—Under the Constitution of California the Board of Supervisors of the City and County of San Francisco is required to annually fix the rates to be charged for water by any water company for the ensuing year. Complainant water company, which supplied water to the city and its inhabitants, brought suit to enjoin the enforcement of the ordinance fixing the rates for a certain year, which were slightly higher than those which had been accepted and charged by the company for a number of preceding years, but in the meantime taxes and operating expenses had increased so that its net income had substantially decreased. On the showing made it appeared probable that the rates made by the ordinance were so low as to be unreasonable and confiscatory under the changed conditions. Held, that complainant was not estopped by its acquiescence to maintain the suit, but that the court in the exercise of its discretion would grant a preliminary injunction restraining the enforcement of the ordinance rate only on condition that any amount collected in excess of that rate be impounded to abide the final order of the court.—United States Circuit Court, Northern District.

DAMAGES FOR NON-COMPLETION OF PAVEMENT

Barber Asphalt Paving Co. vs. City of Wabash.—A contract for the improvement of a city street provided for completion before October 1, and for a failure to complete the contractor agreed to "pay and forfeit" to the city as "liquidated damages" the sum of \$25 per day after October 1. Held, that though the word "forfeit" ordinarily means "penalty," its meaning, like that of the words "liquidated damages," is to be determined by the connection in which it is used, and in view of the fact that it was necessary to complete such improvement in the Summer months, and damages might reasonably flow from a failure to complete within the time limited, the damages will be considered liquidated damages, and not a penalty, regardless of whether the city actually suffered damages by the delay.—Appellate Court of Indiana.

LIABILITY FOR SNOW AND ICE

Brennan vs. City of New York.—Where an icy condition of a crosswalk was caused by a two and a half inch fall of snow, which commenced in the morning of the 14th of the month and continued at intervals until the morning of the 15th, and plaintiff was injured by falling on the ice on the evening of the 16th, even if the condition was a dangerous accumulated obstruction, for which the city would be liable, it had not existed so long at the time of the injury that knowledge of it could be imputed to the city.—New York Supreme Court.

DEDICATION OF STREET—IDENTIFICATION

City of Paragould vs. Lawson et al.—By parol testimony of extraneous circumstances, a plat of a city addition, in which the streets and alleys were dedicated to the city, and in which one street was given the same name and width as a street in the old part of the city, could be fitted to the adjoining parts of the city, so that the street in question would be a continuation of the one by the same name in the old part of the city, as it was obviously intended to be.—Supreme Court of Arkansas.

STREETS—JURISDICTION

Alexander & Hutchinson vs. City of Montpelier.—The County Court has no jurisdiction, on appeal from the determination of the Council of a city, ordering the resurvey, on application, of a street, and grading it and building a retaining wall on the side thereof, to order the city to move the wall on it, determining that the wall was in the street as resurveyed by commissioners appointed by it.—Supreme Court of Vermont.

PERSONAL INJURIES—PLEADING

Hitchings vs. City of Maryville.—A petition against a city for personal injuries caused by a defective sidewalk, alleging that the defect was known to the city "and in the exercise of ordinary care might have been known to defendant city in time to have repaired the same," defectively stated a cause of action, but the defect was not vital, and could only be taken advantage of by demurrer or motion filed before the city answered to the merits.—Kansas City Court of Appeals.

MUNICIPAL CONTRACT—DELAY IN PAYMENTS

Williams et al. vs. City of New York.—A contract with the city of New York, acting through the Aqueduct Commissioners, for the construction of a dam on the Croton River, provided for paying the contractors as the work progressed, 90 per cent of monthly approximate estimates of the engineer, certified to the Comptroller by the Commissioners. Pursuant thereto an estimate was certified on January 12, 1904, and was received by one of the contractors on the 14th; but there existed on file with the Comptroller a mechanic's lien applying to this payment, which was not discharged till February 8 following, and sixteen days after the last-named date the contractor stopped work, claiming a breach of contract as to such payment; but the city had not repudiated the contract nor its obligation to pay. Held, that the city was entitled to a reasonable time to pay such estimate, and in view of the fact that its charter fixed thirty days as a reasonable time before action could be commenced against it on a claim, and that the course of dealing between the parties as to prior estimates, payment of which was in some cases delayed for a longer time, indicated that a reasonable delay was recognized, it could not be said as a matter of law that the delay in this case was a breach of the contract warranting action therefor.—New York Supreme Court.

SIDEWALK ORDINANCE—NOTICE

Gregg vs. City of Stuttgart.—Act April 8, 1903, authorizes first and second class cities to compel property owners to construct sidewalks, and to designate the kind of sidewalks and material to be used, and a general ordinance enacted thereunder provided that all sidewalks should be built of brick, cement, concrete or plank, as the Council or street committee should designate, and should not be less than four feet wide, and such a distance from the ground as the Council prescribed, and required property owners to construct sidewalks before their property within thirty days after receiving notice to do so, and, if they failed to do so, the Council could contract for constructing them upon giving notice, and the costs of constructing them should be a charge against the owner and be a lien on his property. Held, that the general ordinance and specific notices and resolutions are to be construed together, and a notice served on a property owner to build within thirty days a four-foot sidewalk of concrete, and a resolution requiring him to build the sidewalk, and notifying him that on his failure to do so the city would cause it to be built and charge the cost against his property, furnished sufficient information to enable the owner to construct a proper cement sidewalk, and he was liable for the cost of one constructed by the city, on his failure to comply with the notice and resolution.—Supreme Court of Arkansas.

CHANGE IN GRADE OF STREET.

Johns vs. Village of Salamanca et al.—A change in the grade of a street being made under authority of law is not a continuing trespass on the easement of access to abutting property, and the abutting owner cannot recover at common law damages occasioned by such change. Laws of 1883, providing for compensation when the grade of a street is changed so as to injure abutting property, provides for full compensation for the injury done to abutting property by such change, and includes, not only damages to the fee, but diminution in the rental value from the time of the permanent change in the grade to the making of the award for fee damages.—New York Supreme Court.

PAVEMENT ASSESSMENT—ESTOPPED

Lawton vs. City of Racine et al.—Where an abutting owner's grantor had signed the petition for the pavement of a street, and, when such owner purchased, he had knowledge of that fact, and knew that the paving was being done and made no objection until it was completed, and the cost of the improvement was reasonable, and the premises owned by him were actually benefited to the amount of the assessment against him, he is estopped to maintain an action to restrain the issuance of bonds based upon the assessment.—Supreme Court of Wisconsin.

LIGHT PLANT—IRREGULAR PROCEEDINGS

Bay City Traction and Electric Co. vs. Bay City.—Bay City Consolidated Charter provides that it shall be lawful for the city to purchase and maintain an electric light plant. Section 167 provides that, whenever two-thirds of the Aldermen elect shall by resolution declare that it is expedient for the city to acquire by purchase electric light works, the Council may take such action as shall be deemed expedient to accomplish that purpose. Held, that the Council had no power to provide for a city electric lighting plant where it did not first adopt a resolution determining the expediency of the purpose by a two-thirds vote of the Aldermen elect.—Supreme Court of Michigan.

NEWS OF THE SOCIETIES

National Engineering Societies.—A special meeting of the engineering profession, under the auspices of the four National Engineering Societies, will be held at the Engineering Societies Building, 29 West Thirty-ninth street, New York, N. Y., Wednesday evening, March 24. The speakers will be John R. Freeman, Dr. R. W. Raymond, Charles Whiting Baker and Lewis B. Stilwell, who will deal with the "Conservation of Our National Resources." Each represents one of the societies and will present a paper in regard to some specific feature of this vital economic problem. All four societies have announced the names of their representatives and the titles of the papers to be presented. The authors and titles are:

1. American Society of Civil Engineers—"The Conservation of Water." By John R. Freeman.
2. American Institute of Mining Engineers—"The Conservation of Natural Resources by Legislation." By Rossiter W. Raymond.
3. American Society of Mechanical Engineers—"The Waste of Our Natural Resources by Fire." By Charles Whiting Baker.
4. American Institute of Electrical Engineers—"Electricity and the Conservation of Energy." By Lewis B. Stilwell.

Owing to lack of time there will be no discussion on these papers. No resolutions will be adopted, nor any action taken which would commit any or all of the societies to the endorsement of views presented either in the paper or in the discussion communicated afterward. About ten days before the meeting each society will send a notice to its own members; this notice will state more fully the object of the meeting, and should be considered as an invitation to any member to submit a written discussion on the papers. The chairman of the A. I. E. E. committee on conservation of natural resources is Henry G. Stott, 600 West Fifty-ninth street, New York.

Wayne County Highway Commissioners' Association.—The 21 Highway Commissioners of Wayne County held a meeting at the court house, Lyons, N. Y., February 25, and formed a permanent organization. The preliminary meeting was called to order and presided over by Highway Commissioner William F. Kaiser, of Lyons. The organization was effected by the election of William F. Kaiser, of Lyons, as chairman; William T. Jordan, of Lock Berlin, as secretary, and C. H. Hadden, of Palmyra, as treasurer. Mr. Blanchard, of Auburn, delivered an address on good roads and their building maintenance. Commissioner Taylor, of Savannah, spoke about gravel and stone roads; Commissioner Taylor, of Huron, on stone roads in country towns; Commissioner Hadden, of Palmyra, on gravel and dirt roads, and Commissioner Kaiser, of Lyons, detailed his experience in building the Rogers and Pilgrimage crushed stone roads.

Civil Engineers' Society of St. Paul, Minn.—The society publishes a booklet, vest-pocket size, giving a list of the officers and members. The regular meetings of the society are held in the clubroom in the City Hall on the second Monday of each month at 8 o'clock p. m., excepting in June, July and August. D. F. Jurgensen is secretary, address, 116 Winter street.

Western Society of Engineers.—Papers on the following subjects are expected to be presented at some of the meetings to be held in the near future, according to a notice sent out by the secretary, J. H. Warder, 1735 Monadnock Block, Chicago, Ill.: "Some Tests of Heavy Pulley Blocks and Wire Cables; also a Heavy Derrick Car for Bridge Erection," J. H. Prior, Chicago, Milwaukee & St. Paul Railway; "Manganese Steel," W. S. Potter, Paterson, N. J.; "The Chicago Harbor and River," John M. Ewen, Chicago; "Reconstruction of Street Car Tracks in Chicago," George Weston, Chicago; "Protective Coatings for Structural Materials," R. S. Perry, Philadelphia; "Recent Developments in Manufacture and Use of Portland Cement," S. B. Newberry, Sandusky, O., and "Sanitary Arrangement and Maintenance of Contractors' Camps," O. E. Strehlow, Chicago.

National Association of Park Superintendents, Eastern Branch.—It is probable that there will be about 30 members in the Eastern Branch of the National Association of Park Superintendents, which began its existence in Hartford, Conn., February 26, following a luncheon at the Hotel Heublein Rathskeller. The superintendents gathered there by invitation of Superintendent Parker, of Hartford. The next meeting will be held on April 16 in New York City. The object of the association is to promote cooperation among the superintendents of public parks in the East and to facilitate the discussion of matters of interest and importance to them. John A. Pettigrew, Superintendent of Parks, Boston, was elected president of the new organization, and George A. Parker, Hartford, was elected secretary-treasurer. The following park officials were present: Samuel Parsons, architect and Park Commissioner, New York City; John A. Pettigrew, Superintendent of Parks, Boston, Mass.; Joseph D. Fitt, Superintendent of Parks, Providence, R. I.; J. H. Hemingway, Superintendent of Parks, Worcester, Mass.; William Zartman, Superintendent of Parks, Brooklyn, N. Y.; Thomas Ladd, Superintendent of Parks, Springfield, Mass.; Robert Cameron, Superintendent of Parks, Cambridge, Mass.; John Shae, Superintendent of Parks, Boston, Mass.; Henry Barker, Secretary Metropolitan Park System of Rhode Island; G. X. Amhryn, Superintendent of Parks, New Haven, Conn.; Charles E. Keith, Superintendent of Parks, Bridgeport, Conn.; J. F. Huss, Superintendent of the Goodwin estate, Hartford; Robert Scrivener, Superintendent of Cedar Hill Cemetery, Hartford, and George A. Parker, Superintendent of Parks, Hartford.

Chamber of Commerce and Merchants' Association, Boston.—The joint committee of the associations met February 27 to study the recommendations of the Finance Commission to the Legislature regarding a new city charter. As a result of the deliberations the committee will report in favor of supporting the Finance Commission's draft of a charter.

Commercial Club and Real Estate Exchange of Omaha.—At a meeting of the two associations, February 19, in the rooms of the Commercial Club, Clinton Rogers Woodruff was the guest of the evening, and delivered an address on civic improvement. His argument was that civic improvement paid as a matter of dollars and cents. He urged work along the following lines: Home rule, cooperation, no billboards,

cleaner streets, wide street parking, attractive front door, less smoke, or none at all, more boulevard and park improvement, more encouragement and less discouragement, and steady, constant pull together for good government.

Calendar of Meetings

- March 17.
Western Society of Engineers.—Extra meeting, 1735 Monadnock Block, Chicago, Ill.—J. H. Warder, Secretary.
- March 17.
American Society of Civil Engineers.—Regular meeting at Society House, 220 West Fifty-seventh street, New York.—Charles Warren Hunt, Secretary.
- March 24.
Municipal Engineers of the City of New York.—Regular meeting, Engineering Societies Building.—C. D. Pollock, Secretary, 29 West 39th street, New York, N. Y.
- May 16-19.
City Marshals and Chiefs of Police of Texas.—Annual convention, Galveston.—Chief J. H. Maddox, Fort Worth, Chairman, Executive Committee.
- May 31-June 5.
International Association of Police Chiefs.—Annual convention, Buffalo, N. Y.—Maj. Richard Sylvester, President, Washington, D. C.
- June 1-4.
National Electric Light Association.—Thirty-second convention, Atlantic City, N. J.—W. W. Freeman, Engineering Societies Building, 29 West 39th street, New York, N. Y., Secretary.
- June 8-12.
American Water Works Association.—Twenty-ninth annual convention, Milwaukee, Wis.—J. M. Diven, Secretary, 14 George St., Charleston, S. C.
- July 6-9.
American Society of Civil Engineers.—Annual convention, Mount Washington Hotel, Bretton Woods, N. H.—Charles Warren Hunt, Secretary, 220 West 57th street, New York, N. Y.

INCORPORATIONS

- Associated Engineering Company,** Louisville, Ky.; capital, \$15,000. Incorporators: John H. L. Vogt, Herman F. Scholtz and Oluf G. Peterson.
- Bayonne Lumber and Manufacturing Company,** 718 Broadway, Bayonne, N. J.; to deal in lumber and a general light, heat and power business; capital, \$100,000. Incorporators: James T. R. Proctor, James F. Burnett, Hugh C. Colville, William C. Farr, William Meyerholz, George J. Donegan, Samuel E. Bryner, Dwight S. Dennis, James A. Young and Alvah W. Farmer.
- Citizens' Gas Company of Landis Township,** Vineland, N. J.; to operate gas works; capital, \$30,000. Incorporators: Henry B. Kimble, N. O. Livermore, S. J. Franklin, Millville, N. J.; Louis H. Miller, Vineland, N. J.; Edward A. Homan, D. H. Burge, I. Malalesta, George M. Poulton, Charles V. Marshall, Isaac R. Erickson, William S. Kenndricks, R. O. Bidwell, Landis Township, N. J.
- Contractors' Supply Company,** Vicksburg, Miss. Incorporators: J. P. March, T. M. Folkes and others.
- Jefferson Ice, Light and Power Company,** Jefferson, Tex.; capital, \$50,000. Incorporators: John T. McDonald, M. Bower and R. B. Walker.
- Lindley-Kirk Construction Company,** Oklahoma City, Okla.; capital, \$250,000. Incorporators: T. H. Lindley, J. E. Kirk and M. L. Lindley.
- Patent Monarch Alarm Company,** China Grove, N. C., recently reported incorporated, has organized with \$100,000 capital stock. W. B. Gobel, President; F. W. Bost, Secretary and Treasurer; has had plans prepared by W. B. Gobel, China Grove, for plant: one building; two stories; 100x200 feet; mill construction, and several smaller buildings; cost, \$15,000; machinery to cost \$20,000; capacity, 500 alarms.—F. W. Bost, Engineer in Charge.
- Sewage Disposal and Guano Company,** New York, N. Y.; to collect, treat and dispose of ashes, garbage and refuse; capital, \$100,000. Incorporators: Benjamin F. Thomas and E. Touissant Welcome, 213 West Fifty-third street; John William Smith, 307 West 119th street, all of New York.
- Neversink Valley Water Company,** Middletown, N. Y.; capital, \$10,000,000. Incorporators: H. T. McBriar, President, Neversink, N. Y., and others.
- Pewaukee Light, Power and Milling Company,** Pewaukee, Wis.; capital, \$20,000. Incorporators: Oswald C. Homberger, Herbert B. Mundt, Frank Avery.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage
Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation
Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Illinois	Bloomington	Mar. 11	Brick paving, 14,500 sq. yds.; curb and gutter, 7,944 lin. ft.	C. F. Fauntz, City Engineer
Ohio	Cleveland	Mar. 11, noon	Furn. 90,000 ft. 6 in. long leaf yellow pine paving block	E. H. McIntosh, Sec'y Bd. Pub. Serv.
New York	New York	Mar. 11, 3 p.m.	Furn. Roa Hook or other gravel in parks and parkways	Henry Smith, Pres. Park Bd.
Ohio	Toledo	Mar. 11, 10 a.m.	Repairing Lagrange St. stone road No. 5, Washington twp.	D. T. Davies, Jr., County Auditor.
Minnesota	St. Paul	Mar. 11, 2 p.m.	10-ton steam macadam road roller, trap rock, etc.	Bird S. Coler, Boro. President.
New York	New York	Mar. 11, 3 p.m.	Constructing, relaying and repaving cement sidewalks during 1909; grading Bradley St.	John S. Grode, Pres. Bd. Pub. Wks.
Ohio	Columbus	Mar. 12, noon	Repairing seven steam rollers	Henry Smith, Pres. Park Board.
Wisconsin	Beaver Dam	Mar. 12, 7:30 p.m.	Furn. and del. f.o.b. Columbus, 100 tons refined asphalt	Edw. W. Hirsch, Sec'y Bd. Pub. Serv.
Virginia	Nat'l Sol. Home	Mar. 12	Brick paving 15,000 sq. yards, grading, curbing, etc., 3 streets	Anton A. Fischer, City Clerk.
Maryland	Elkton	Mar. 12	Labor and material for 3,465 sq. yds. concrete sidewalks	John T. Hume, Treas. Sold Home.
New York	New York	Mar. 12, 2 p.m.	Grading, macadamizing, etc., 3 1/2 miles, 2 roads	John H. Perrell, County Clerk.
			For extension and improvement Riverside Drive to Hudson Mem. Bridge; 115 ft. wide, two sidewalks and bridge path; also constructing Inwood Viaduct; total cost, \$4,850,000	J. F. Ahearn, Pres. Boro. Man.
Ohio	Cincinnati	Mar. 12, noon	Construct. cement sidewalks, concrete retaining walls, steps and iron fence at Sinton Park	M. C. Longenecker, Sec. Bd. Pk. Com.
Kansas	Ft. Scott	Mar. 13	Combined curb and gutter, 5,520 ft.; macadam paving, 1,150 sq. yds.; also 4 blocks brick paving, 48 ft. wide, cost, \$130,000	R. L. Stroude, City Engineer.
Ohio	Cleveland	Mar. 13, 11 a.m.	Grading, draining and improving Lake Shore boulevard	A. B. Lea, County Surveyor.
Oklahoma	Muskogee	Mar. 15, noon	Brick paving on 5-in. concrete, curb, gutter, etc., alley	Morgan Caraway, City Clerk.
Iowa	Iowa City	Mar. 15	Doing all or any portion of township road work	Harry Weider, Clk. Graham Twp.
Oklahoma	Paulo Valley	Mar. 15	Brick paving, 17,986 sq. yds. furn. material, etc.	L. C. Hunter, City Engineer.
Ohio	Ashland	Mar. 15, noon	Grading, curbing and paving Bank and Grant streets	J. Cahn, Mayor.
Ohio	Batavia	Mar. 15, noon	Constructing free turnpikes in Clermont County	County Auditor.
Connecticut	New London	Mar. 15	Brick paving State st.; 2,700 yds. by city, 3,500 by Conn. Comp.	Geo. F. Crandall, City Engineer.
Michigan	Manistee	Mar. 16, 2 p.m.	Paving, curbing, guttering, 13th and Main Sts.	Jos. E. Craig, City Surveyor.
Washington	Hoquiam	Mar. 16, 6 p.m.	Clearing, filling, laying sewers, brick pavement, curb, cement, sidewalks, etc., 1 and Eighth Sts.; cost, \$138,642	Z. T. Wilson, City Clerk.
New Jersey	Bayonne	Mar. 16, 8 p.m.	Furn. asphalt and paving 19,150 sq. yds., 4 streets	F. W. Dalrymple, City Engineer.
New Jersey	Cape May	Mar. 16, noon	Bldg. gravel road 2,902 miles long, Holly Beach Turnpike	R. Fendall Smith, County Eng'r.
Ohio	Bryan	Mar. 16	Grading and macadamizing 1 1/4 miles road; cost \$6999	Jas. C. Wonders, St. Hwy. Com'r, Col.
Indiana	Noblesville	Mar. 16, 1 p.m.	Stone or gravel paving, grading, draining, 10 roads	N. W. Cowgill, County Auditor.
New York	Canandaigua	Mar. 16, 8 p.m.	Labor and material for paving and improving Mill St.	E. P. Warner, Pres. Bd. St. Comrs.
New York	Brooklyn	Mar. 17, 11 a.m.	Furn. 1,500 bbls. Portland cement, 500 cu. yds. paving gravel, 2,000 cu. yds. sand, 2,500 yds. broken traprock, 600 yds. screenings, 12,000 Medina standstone paving block, 10,000 asphalt block, 10,000 iron slag block, 20,000 brick, 50 tons paving cement, 6,500 cu. yds. asphalt sand	Bird S. Coler, Boro. President.
Ohio	Cleveland	Mar. 18, noon	Relaying and repairing cement and stone sidewalks for year	W. J. Springborn, Pres. Bd. Pub. Serv.
New York	Geneva	Mar. 18, 7:30 p.m.	Paving, brick, asphalt, block, etc., 14,000 sq. yds.; excav. 6,500 cu. yds.; curb, 9,000 lin. ft.; sewer tile, 4,245 lin. ft.	C. T. Church, City Engineer.
Saskatchewan	Prince Albert	Mar. 18, 8 p.m.	Furn. stone crusher, elevator, screens, motor and road roller	F. A. Creighton, City Engineer.
Indiana	Tipton	Mar. 19, 11 a.m.	Bldg. Park gravel road, bet. Tipton and Madison counties	J. F. Barlow, County Auditor.
New York	Kingston	Mar. 19, 7:30 p.m.	Paving vit. brick, first quality, block size, 53,500 sq. yds., 4 sts.; regulating, resetting curb, etc.	Dayton Murray, City Clerk.
Wisconsin	Racine	Mar. 20, 10 a.m.	Paving Main and Marquette streets	H. P. Connolly, Chm. Bd. Pub. Wks.
Ohio	Cleveland	Mar. 20, 11 a.m.	Grading, draining and improving Northfield road	A. B. Lea, County Surveyor.
Ohio	Ravenna	Mar. 22, noon	Paving 12,228 sq. yds. curb 6,214 ft.; 10-18-in sewer, 3,810 ft.	E. W. Marvin, Village Clerk.
Texas	Paris	Mar. 22	Paving work to cost \$15,000 to \$25,000	O. B. McKnight, City Secretary.
Ohio	Jefferson	Mar. 22, 1 p.m.	Grading and macadamizing 3.8 miles of road, New Lyme twp.	J. S. Matson, County Surveyor.
Wyoming	Ft. D. A. Russell	Mar. 23, 9:30 a.m.	Bldg. 55,407 sq. ft. concrete or stone sidewalks, also 15,570 sq. yds. roadway	Capt. V. K. Hart, Q.-M.
Ohio	St. Bernard	Mar. 26, noon	Grading, macadamizing, concrete curb and gutter, etc., 2 sts.	J. A. Stewart, C.E., Trac'n Bldg., Cin.
Ohio	Cincinnati	Mar. 26, noon	Improving Vaughn road from city line to Andrew Ave.	Stanley Struble, Pres. Co. Comrs.
Ohio	Bowling Green	Mar. 29, noon	Grading, draining, macadamizing 2 roads, 7 and 2 miles long	F. W. Toan, County Auditor.
New York	Watertown	Mar. 30, 5 p.m.	Bldg. 4,500 sq. yds. sandstone block, vit. brick or block on concrete; grading, sewers, culverts, curb, etc., 2 streets	E. W. Sayles, City Engineer.
Ohio	East Liverpool	Mar. 30, noon	Brick paving, 10,491 sq. yds.; 6,734 ft. 24-in. and 6,834 ft. 18-in. concrete curb, 4 catch basins, Lisbon road	Matthew Anderson, Chm. Twp. Trus
Iowa	Fairfield	Mar. 31	Grading Cedar Hill, inc. 7,233 cu. yds. cut, 7,600 yd. fill, haul 350 to 400 yds., on Birmingham road	A. E. Labagh, County Auditor.
Ecuador, S. A.	Guayaquil	Apr. 1	Bldg. concrete sidewalks, macadam roads and sewers	Ecuadorian Legation, Wash., D.C.
Louisiana	New Orleans	Apr. 1	Improvements on New Basin Canal and Shell road, including rebuilding levee; cost, \$105,000	Walter C. Murphy, Levee Board.
New York	Newburgh	Apr. 1	Improving South West St.; cost, \$42,000	Wm. J. Blake, City Engineer.
North Dakota	Aneta	Apr. 1, 6 p.m.	Constructing cement sidewalks	Theo. W. Peterson, City Auditor.
Ohio	Cincinnati	Apr. 2, noon	Improving Princeton pike; \$5,000 bond	Stanley Struble, Pres. Co. Comrs.
New York	Little Falls	Apr. 2, 10 a.m.	Paving, any hard material, 6,400 sq. yds., 2 streets	Dennis B. Reardon, Clk. Bd. Pub. W.
Louisiana	Harrisonburg	Apr. 5, noon	Building 4 1/2 miles of road near Trinity	J. A. Guss, Jonesville.
Alabama	Lafayette	Apr. 5	Grading preliminary to building road from city to Lancett	A. J. Driver, Jr., Probate Judge.
Wisconsin	Tomah	Apr. 16	Constructing brick pavements	Com'r of Public Works.
WATER SUPPLY				
Michigan	Grand Rapids	Mar. 11, 8 p.m.	Furn. and erect 12,000,000-gal. vert. triple-expan. pump and engine	S. A. Freshney, Gen. Mgr. Bd. Pub. W.
Ohio	Toledo	Mar. 11, noon	Bldg. c. i. pipe conduit, concrete culvert and gate chamber	Reynold Voit, Sec'y Bd. Pub. Serv.
Pennsylvania	Lebanon	Mar. 11, 5 p.m.	Enlarging dam No. 2 of gravity water supply system, inc. 33,000 cu. yds. earth in dam breast, concrete intake, tower 50 ft. high	T. R. Crowell, City Engineer.
Massachusetts	Boston	Mar. 11, 10 a.m.	Bldg. meter chambers and install. meters, Ft. Warren and Gallop Island	Capt. R. H. Rolfe, 263 Sumner St.
New York	New York	Mar. 11, 11 a.m.	Bldg. portion of Catskill Aqueduct, inc. 5,450 ft. plain concrete, cut-and-cover, 17x17 1/2 ft., and 2 tunnels, 17x13 1-3 ft. on hydraulic gradient, combined length 6,450 ft. in Yorktown	Board of Water Supply.
Missouri	Kansas City	Mar. 11, 2 p.m.	Pumping engine, 15,000,000-gal. at Turkey Creek pumping station; also 25,000,000-gal. engine at Quindaro	Bd. Fire and Water Com'rs.
Wyoming	Ft. Yellowstone	Mar. 13, 4 p.m.	Furn. three 28-h.-p. water turbines, etc., three 1,500-kw. dir. con., 3-phase, 2,200 or 2,300 volt, 60-cycle, 950 r.p.m. generators and three 8-kw. exciters, etc., air chamber, lighting equipment, etc.	Lt. G. O. Smith, Q. M., U. S. Army.
Alberta	Edmonton	Mar. 15	Supplying water pipe for year 1909	City Commissioners.
Illinois	Joliet	Mar. 15, 10 a.m.	Constructing water main	Wm. S. Welch, Clerk Bd. Local Imp.
Oklahoma	Muskogee	Mar. 15, 5 p.m.	Bldg. 3,000,000-gal. water filter; L. B. Kinsey, City Engr.	Morgan Caraway, City Clerk.
Illinois	Waukegan	Mar. 15, 8 p.m.	Bldg. and erect. 60,000,000-gal. hori. high duty engine of self-contained type, against domestic head of 75 lbs. and fire pres. 125 lbs.	H. Thacker, City Clerk.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
WATER SUPPLY—Continued				
Pennsylvania...	Philadelphia....	Mar. 15 noon.....	Bldg. new filtration plant at Queen Lane Pumping Station for supplementary supply, inc. 46 final filters and 54 preliminary filters, capacity 60,000,000 gals. per day; cost, \$2,500,000; also restoring sand to Belmont Upper and Lower Roxborough and Torresdale filters.....	Geo. R. Stearns, Dir. Pub. Wks.
Kansas.....	Wichita.....	Mar. 15, 7:30 p.m....	Constructing system of water works; est. cost, \$860,000; cert. check, \$10,000; plans, \$25; Hiram Phillips, St. Lo., Mo., Engr.	R. N. Dorr, City Clerk.
Alabama.....	Montgomery....	Mar. 15.....	Two 200 h.p. water-tube return tubul. or Scotch marine boilers, work. pres. 160 lbs., also two 250-h.p. boilers, reinforcing foundation, removing boilers, bricking in, etc.....	Robert Tait, City Treasurer. E. M. Newcomb, City Auditor. Chas. Antisdel, City Clerk.
South Dakota..	Woonsocket....	Mar. 15, 7 p.m.....	Constructing 8-in. artesian well.....	Robert Tait, City Treasurer.
Michigan.....	Dowagiac.....	Mar. 16.....	Steam pumps, also bldg. standpipe, gas producer plant.....	E. M. Newcomb, City Auditor.
Maryland.....	Baltimore.....	Mar. 17, 11 a.m.....	Bldg. small reservoir to store spring water to supply fountain in Druid Hill Park, with supply and outlet pipes.....	Chas. Antisdel, City Clerk.
Alabama.....	Fort Dade.....	Mar. 18, 8 p.m.....	Constructing two cypress tanks at post.....	Wm. S. Manning, Gen. Supt., Pk. Bd.
New York.....	New York.....	Mar. 18, 11 a.m.....	Bldg. Walkill Siphon, deep-pressure tunnel in rock, 14½ ft. diam. 23,400 ft. long crossing under Walkill River, 6 shafts, 350 to 480 ft. deep, adjacent grade tunnels and concrete cut-and-cover aqueduct.....	Constructing Quartermaster, U. S. A.
Massachusetts..	Boston.....	Mar. 19, 10 a.m.....	Extensions to water and sewer systems at Fort Andrew.....	Board of Water Supply.
Minnesota.....	Jackson.....	Mar. 19.....	Bldg. water tower and tank; L. P. Wolff, St. Paul, Engr.....	Capt. R. H. Rolfe, 263 Summer St.
New York.....	New York.....	Mar. 22, 11 a.m.....	Bldg. Turkey Mountain grade tunnel, 1,400 ft. long, 17x13 1-3 ft. on hydraulic gradient; also Croton Lake pressure tunnel, crossing under Croton Lake, 14 ft. diam., 2,600 ft. long, two shafts, 510 and 560 ft. deep; blow-off tunnel, 400 ft. long; 3 sections, 2,000 ft. cut-and-cover, 17x17½ ft. in Yorktown....	J. G. Robertson, City Clerk.
Illinois.....	Oak Park.....	Mar. 23.....	Bldg. connecting system, 19 miles 6 to 12-in. main.....	John A. Benschel, Pres. Bd. Wtr. Sup.
Ontario.....	Burlington.....	Mar. 23, 8 p.m.....	Pipe laying, pump house, water tower, c. i. pipe, hydrants, valves, elec. operated pump mach., pump well.....	B. C. Branstadt, Sec'y Bd. Local Imp.
Maryland.....	Berlin.....	Mar. 25, 2 p.m.....	Bldg. water works and electric light system, inc. water dis. system, 500-gal. duplex pump, piping, etc. 12, 12x5 ft. stand pipe. 3 and 8-in. wells, not over 100 ft. deep, etc.....	Willis Chipman, C. E., Toronto.
New York.....	New York.....	Mar. 25, 11 a.m.....	Bldg. 2½ miles concrete aqueduct, 17x17½ ft. diam.....	Dodge & Day, Engrs., Washington Bldg., Philadelphia, Pa.
Montana.....	Stevensville....	Mar. 25, 5 p.m.....	Bldg. w. w. system, inc. 10,800 ft. 6-in., 10,650 ft. 4-in., 11,700 ft. 8-in. wire-wound wooden pipe, 23 hydrants, small reservoir, check, \$1,000; J. H. Kyd, C. E., Butte.....	Board of Water Supply.
Oklahoma.....	Muskogee.....	Mar. 29, 5 p.m.....	Furn. 4,000,000-gal. high and 5,000,000-gal. low service pump and 250 h.p. tubular boiler; L. B. Kinsey, Engineer.....	George T. Baggs, Town Clerk.
New York.....	New York.....	Mar. 30, 11 a.m.....	Bldg. 2 tunnels, 3,600x700 ft. long, 17x13 1-3 ft., also 13,200 ft. plain concrete aqueduct, 17x17½ ft. Westchester Co.....	Morgan Caraway, City Clerk.
Nebraska.....	Litchfield.....	Apr. 1.....	Constructing \$10,500 water works.....	John A. Benschel, Pres. Bd. Wtr. Sup.
Mississippi.....	Jackson.....	Apr. 6, noon.....	Furn. 6,000,000-gal. high duty pumping engine.....	R. P. Moore, Village Clerk
New York.....	New York.....	Apr. 16, 11 a.m.....	Bldg. Sections 17 and 18 of Catskill aqueduct.....	Hamilton Johnson, City Engineer.
California.....	Petaluma.....	May 5, 7 p.m.....	Furn. and install. pump. mach. for salt-water high-pressure sys.	John A. Benschel, Pres. Bd. Wtr. Sup. City Clerk.
SEWERAGE				
Ohio.....	Dayton.....	Mar. 12, noon.....	Bldg. sanitary sewers, Dist. No. 4, inc. 22,265 ft. 8-in., 5,555 ft. 10-in., 1,000 ft. 12-in. vit. pipe; 625 ft. 0 to 6 ft. trench; 22,740, 6 to 8 ft. deep; 4,755 ft., 8 to 10 ft.; 775 ft. 10 to 12 ft.; 125 ft., 12 to 14 ft.; 75 manholes, 40 lamp poles, 27 flush tanks, lead pipe connections, repaving brick, etc.....	J. C. Ely, Pres. Bd. Pub. Service.
Kentucky.....	Louisville.....	Mar. 12, noon.....	Bldg. Cave Hill lateral sewers, Cont. No. 27, inc. 4,500 ft. separate sewers, 8 to 30-in., 9 ft. deep, 100 cu. yds. concrete.....	J. B. F. Breed, Ch. Eng. Sew. Com.
Kansas.....	Ft. Riley.....	Mar. 13, 10 a.m.....	Constructing 2,300 ft. of sewer and 6 manholes.....	Capt. W. M. Whitman, U. S. Army.
Indiana.....	Clermont.....	Mar. 13, noon.....	Bldg. pipe sewers, concrete tanks, walls, etc., for complete purification plant for Indiana Girls' School.....	R. L. Sackett, Purdue Univ., Lafav.
Ohio.....	Piqua.....	Mar. 15, noon.....	Constructing sanitary sewer in Spring St.....	W. B. Mitchell, Clk. Bd. Pub. Serv.
Illinois.....	Joliet.....	Mar. 15, 10 a.m.....	Constructing sewer in Hunter Ave.....	Wm. S. Welch, Clk. Bd. Local Impts.
Brit. Columbia.	Ladysmith.....	Mar. 15, 5 p.m.....	Constructing sewers.....	N. A. Morrison, City Clerk.
South Dakota..	Aberdeen.....	Mar. 15, 8 p.m.....	Bldg. 4,332 ft. 10-in. and 2,906 ft. 12-in. pipe sewer, etc.....	F. W. Raymond, City Clerk.
Florida.....	Clearwater.....	Mar. 15.....	Bldg. \$35,000 sewer system; J. A. Holmboe, C. E., has plans.....	F. L. Hancock, City Engineer.
Illinois.....	Quincy.....	Mar. 15.....	Bldg. North End sanitary sewer, 40 blocks long, egg-shaped brick, 2x3 ft. and 12, 18, and 24-in. pipe, 79 manholes.....	City Commissioners.
Alberta.....	Edmonton.....	Mar. 15.....	Furnishing sewer pipe required during year.....	F. P. Warner, Pres. Bd. St. Comrs.
New York.....	Canandaigua....	Mar. 16.....	Constructing surface water sewers in Mill St.....	Edw. Francis, Chm. Street Com.
New Jersey.....	Camden.....	Mar. 16, 8 p.m.....	Constructing portion sewer, 11th St. outlet.....	Jas. G. Mendenhall, Town Clerk.
Indiana.....	Normal City....	Mar. 16, 8 p.m.....	Constructing Jackson St. sewer No. 1.....	Z. T. Wilson, City Clerk.
Washington....	Hoquiam.....	Mar. 16, 6 p.m.....	Improving 1 and Eighth Sts., by bldg. storm and san. sewers, grading, paving, sidewalks, etc.; cost, \$138,642.....	A. T. Young, Sec'y Sewer Com'rs.
New York.....	Amsterdam.....	Mar. 17, 8 p.m.....	Constructing, complete, sewers in sundry streets.....	Edw. Ingram, City Clerk.
Oklahoma.....	Kingfisher.....	Mar. 19.....	Furn. material and bldg. main sanitary sewer No. 1.....	W. C. Nones, Chm. Sewer Com.
Kentucky.....	Louisville.....	Mar. 19, noon.....	Bldg. Sec. A, Middle Park trunk sewer, Cont. No. 28, inc. 3,500 ft. 34 and 79-in. concrete sewer, 1,600 ft. in tunnel, partly in rock and inc. 800 cu. yds. concrete; H. P. Eddy, C. E., Boston.	Capt. R. H. Rolfe, 263 Summer St.
Massachusetts..	Boston.....	Mar. 19, 10 a.m.....	Bldg. sewage system, Ft. Banks; extend system, Ft. Andrews..	Geo. F. Poorman, City Clerk.
Iowa.....	Des Moines.....	Mar. 19, 10 a.m.....	Bldg. 12-in. pipe sewer in W. 43d, 10-in., E. 9th St.....	Sylvester Scrantz, Drainage Comr.
Illinois.....	Stonington.....	Mar. 20, 10 a.m.....	Furn., haul, and distributing drain tile, inc. concrete pipe.....	W. B. Bates, City Engineer.
Virginia.....	Roanoke.....	Mar. 20, noon.....	Bldg. 20 in. d. s. t. c. storm drain in Gainsborough road.....	Martin Ringer, City Clerk.
Nebraska.....	Wayne.....	Mar. 22, 8 p.m.....	Constructing sanitary sewer system.....	M. O. Rutzel, City Clerk.
Kansas.....	Washington....	Mar. 22.....	Constructing sewer system.....	A. L. Reid, City Engineer.
Ohio.....	Eaton.....	Mar. 24.....	Bldg. sewage disposal plant.....	Geo. Schroeder, Village Clerk.
Ohio.....	St. Bernard....	Mar. 26, noon.....	Material and labor for bldg. sewer in Kemper and Jackson aves.	J. B. F. Breed, Ch. Engr. Sew. Co.
Kentucky.....	Louisville.....	Mar. 26, noon.....	Bldg. Sec. G, So. Outfall sewer; Con. 29; rein. concrete sewer 10 ft., 7 ft. 8-in., and 7 ft. drain, 4,061 ft. long; 16 to 33 ft. deep, inc. 3,700 cu. yds. concrete and 300,000 lbs. steel.....	R. L. Sackett, C. E., Lafayette.
Indiana.....	Angola.....	Mar. 29, 7:30 p.m....	Bldg. main sewer and sewage disposal plant.....	Geo. F. Poorman, City Clerk.
Iowa.....	Des Moines.....	Mar. 31.....	Furn. sewer drain and clay pipe, cement, brick, etc.....	Ecuadorian Legation, Wash., D.C.
Ecuador, S. A.	Quayaquil.....	Apr. 1.....	Constructing re-inforced concrete sewers, sidewalks, etc.....	Charles B. Neal, Chm. Sewer Com.
New Jersey.....	Millville.....	Apr. 2, 7:30 p.m....	Bldg. sewage disposal plant; \$2,000 check.....	Maury Nicholson, City Engineer.
Alabama.....	Birmingham....	Apr. 21.....	Bldg. brick and concrete sewers, 7 sections, to cost about \$200,000; old bids, given Feb. 24 issue, rejected.....	
BRIDGES				
Ohio.....	Toledo.....	Mar. 11, noon.....	Bldg. rein. concrete culvert, gate chamber, pipe, etc.....	Reynold Voit, Sec'y Bd. Pub. Serv.
Missouri.....	Memphis.....	Mar. 11, 2 p.m.....	Bldg. 60 ft. trestle in Jefferson township.....	C. C. Critz, County Hwy. Engineer.
New York.....	New York.....	Mar. 12, 2 p.m.....	Constructing Inwood viaduct, 100 ft. wide, 150 ft. high, 1,800 ft. length; inc. 2,500,000 ft. of lumber, 1,700,000 lbs. steel girders and 6,000,000 cu. ft. of various granites; cost, \$2,000,000.....	J. F. Ahearn, Pres. Boro. Man.
Minnesota.....	Breckenridge....	Mar. 13.....	Constructing 31 wooden bridges; postponement.....	Wilkin County Commissioners.
Ohio.....	Cleveland.....	Mar. 13, 11 a.m.....	Bldg. concrete bridge, concrete arch and concrete culvert.....	A. B. Lea, County Surveyor.
California.....	Los Angeles....	Mar. 15, 2 p.m.....	Bldg. rein. concrete bridge on Mission St. Alham. road dist.	C. G. Keyes, County Clerk.
Illinois.....	Geneva.....	Mar. 15, 7:30 p.m....	Bldg. rein. concrete hwy. bridge over Fox river at State St.....	Oscar Nelson, City Clerk.
Ohio.....	Coshocton.....	Mar. 15.....	2 bridges: Waddell & Harrington, Kansas City, Mo., Engrs.	County Commissioners.
Pennsylvania...	Allentown.....	Mar. 15, 10 a.m.....	Reinforcing material, etc., for repairing wooden bridge.....	County Commissioners.
Alabama.....	Montgomery....	Mar. 15.....	Bldg. masonry sub-structure of bridge over Kanawha river.....	C. K. McDermott, C. E., Christn, W. V.
Ohio.....	Delaware.....	Mar. 15.....	Furn. material and bldg. through riveted truss steel, bridge at Stratford, inc. 3 spans, 75 ft. each; 16 ft. clear roadway; sects. of 375 perch sandstone masonry, sep. bids.....	County Auditor.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
BRIDGES—Continued				
New York	Canandaigua	Mar. 16, 8 p.m.	Repair. and construc. concrete bridges on N. Pearl and Clark Sts	F. P. Warner, Pres. St. Com.
New Jersey	Paterson	Mar. 17, 2 p.m.	Bldg. steel bridge, etc., over river at Wanaque; cost, \$7,000	Geo. W. Botbyl, Clk. Bd. Freeholders
Nebraska	Nebraska City	Mar. 18, noon	Constructing steel and wooden bridges during 1909	A. P. Young, County Clerk
Nebraska	Madison	Mar. 19	Bldg. 70-ft span steel bridge, tubular piers, 16-ft. rdwy; also, all other such bridges; 5,080 ft. during year	Geo. E. Richardson, City Clerk.
Indiana	Greenfield	Mar. 20, 10 a.m.	Bldg. Binford bridge in Blue River township	Charles H. Troy, County Auditor.
Pennsylvania	Pottsville	Mar. 22, 10 a.m.	Bldg. steel bridge over Schuylkill river at Palo Alto	Chas. T. Strauhn, Co. Controller.
South Carolina	Camden	Mar. 25, noon	Bldg. bridge over Wateree river, inc. 2 concrete abutments; 1 concrete pier and 2 steel spans, 375 and 130 ft. long; \$25,000	M. C. West, County Supervisor.
Ohio	Dayton	Mar. 25, 11 a.m.	Bldg. sub. and superstructure bridge over Crk. Madison twp.	T. J. Kauffman, County Auditor.
Ohio	Cleveland	Mar. 27, 11 a.m.	Bldg. concrete culvert Olmstead twp; report No. 3,235	A. B. Lea, County Surveyor.
Ohio	Hamilton	Mar. 30, 10 a.m.	Labor and material for sub-structure and bridge in Reiley twp.	J. E. Brate, County Auditor.
Kansas	Westmoreland	Apr. 1, 2 p.m.	Bldg. 300 ft. steel approach to Stockdale bridge	H. G. Huckstadt, County Clerk.
Louisiana	Harrisonburg	Apr. 5, noon	Bldg. steel bridge at Bushley Bayou; also repairing one	H. W. Bethard, Clk. Police Jury.
Ohio	Bryan	Apr. 6	Bldg. 8 steel bridges, 150 to 40-ft. spans; cost, \$5,798 to \$1,127; also 6 small concrete bridges, spans 12 to 25 ft.	H. M. Sharp, County Surveyor.
Ohio	Cleveland	Apr. 7, 11 a.m.	Constructing concrete arch on Barrett road	A. B. Lea, County Surveyor.
Kansas	Manhattan	Apr. 8, noon	Bld. steel bridge over Fancy Creek, Centre township	Geo. H. Hungerford, County Clerk
LIGHTING AND ELECTRICITY				
Michigan	Grand Rapids	Mar. 11, 8 p.m.	Furn. transformers and switches for sewage pump. sta. mach.	L. W. Anderson, City Engineer.
New York	New York	Mar. 15, 3 p.m.	Installing electric equipment, etc., for 6 schools	C. B. J. Snyder, Supt. School Bldgs.
North Carolina	Charlotte	Mar. 15, 5 p.m.	Lighting streets and other public places with electricity for 5 years from Aug. 15; not less than 250 arc lamps, possibly 350 or more 6.6 amperes, 70 volts at arc; also erect, etc., poles, etc.	A. H. Washburn, Chm. Light Com.
Florida	Jacksonville	Mar. 15	Bldg. \$3,000,000 power plant for Suwanee River Elec. Pow. Co.	D. H. Ziegler & Co., Engrs.
Virginia	Norfolk	Mar. 16, 10 a.m.	Furn. acetylene gas plant and electrical supplies	Commandant, Navy Yard.
Iowa	Burlington	Mar. 18	Furn. three 150 h.p. water tube boilers, set up complete; power house and 54-in. x 125-ft. brick or tile chimney; underground distribution system to 3 schools	D. S. Cooper, Sec'y Bd. Education.
Pennsylvania	Landsdowne	Mar. 20, 8 p.m.	Lighting streets for terms of 5 and 10 years	John W. Davis, Sec'y Boro. Council.
Dist. of Col'bia	Washington	Mar. 22	Furnishing electrical supplies, etc., for Bur. Eng. & Printing	Joseph E. Ralph, Dir. B. E. & P.
Ohio	Wooster	Mar. 22, noon	Lighting sts., etc., for 10 years, begin 5 mos. from date of Cont.	C. W. Van Nest, Clk. Bd. Pub. Serv.
California	Pasadena	Mar. 23	Furn. engine, cond. engine, 750-800 k.w. turb-gen. unit with Terrell regulator and exciter and condenser, 750-800 k.w. 3-phase, 60-cycle, 2,300-volt engine, condenser, etc.	Heman Dyer, City Clerk.
South Carolina	Sumter	Mar. 23, noon	Furn. 50 enclosed incan. arc lights, 2,000 nom. c.p., all within one mile radius; all night service every night; also 50 to 80 add'l lights; 10-year contract from Nov. 1	C. M. Hurst, City Clerk.
Maryland	Berlin	Mar. 25, 1 p.m.	Bldg. electric light plant and water works system, inc. poles, lines, wiring and street lamps; power plant bldg.; foundation for machinery, etc., equipment, inc. 100 h.p. boiler, 50 k.w. gen. unit, switchboard, piping, etc.	Orlando Harrison, Mayor.
New York	New York	Mar. 27, 11 a.m.	Furn. and install. condens. equip. piping, etc., for 1,000 k.w. alternator	R. C. Hollyday, Navy Dept., Washington, D. C.
Michigan	Sault Ste. Marie	Mar. 30, 3 p.m.	Bldg. superstructure, movable dam, St. Mary's Falls Canal	Col. C. McD. Townsend, U. S. A. Detroit.
Iowa	Des Moines	Mar. 31	Furnishing electrical supplies, etc. to city	Geo. F. Porman, City Clerk.
Kansas	Fort Riley	Apr. 2, 10 a.m.	Extensions to lighting system, inc. 5 transformers	Capt. W. M. Whitman, Qm.
California	Chico	Apr. 2	Sale of franchise for right to erect poles and wires for transmission and sale of electric power to city, its inhabitants for 50 years; Frank C. Wilson for Sierra Power Co., petitioner	Board of City Trustees.
MISCELLANEOUS				
New York	New York	Mar. 11, noon	Furn. 19,200 ft. rubber hose for Street Cleaning Department	Wm. H. Edwards, Comr. St. Cleaning
New York	New York	Mar. 12	Furn. material and refendering Pier 53, North River; preparing foundations for street front of bulkhead; bldg. freight shed on pier, also lateral extension on adjacent platform	Allen N. Spooner, Comr. Docks.
Ohio	Cincinnati	Mar. 12, noon	Erecting new shelter and bath house, etc., Sinton Park	M. E. Longenecker, Sec'y Pk. Comrs.
New York	New York	Mar. 12, 2 p.m.	Extension of Riverside Drive, inc. 600,000 cu. ft. var. granites, 800 trees, 445,000 ft. sod, 1,000 shrubs, thousands cu. yds. concrete, etc.	J. F. Ahearn, Pres. Boro. Man.
New Jersey	Union	Mar. 13, 8 p.m.	Erecting new 200-ton ice plant of brick	Consumers' Hygienic Ice Co.
Minnesota	Thief River	Mar. 15, noon	Bldg. and installing local telephone plant of 300-500 phones	Lars Backe, City Clerk.
Ohio	Sandusky	Mar. 15, noon	Collection of garbage and offal, dead animals, etc., for 5 years	John J. Molter, Pres. Bd. Health.
New York	New York	Mar. 15, noon	Furn. parts for repairs of sprinkling trucks	Wm. H. Edwards, Comr. St. Cleaning.
Massachusetts	Lawrence	Mar. 15, noon	Collection and purchase of all swill of city	Bd. of Health, 130 Oak St.
Ohio	Bellaire	Mar. 15, noon	Making a plat of city	R. E. Crow, Clk. Bd. Pub. Serv.
Massachusetts	Boston	Mar. 15, 2:30 p.m.	Bldg. Pens gate-house; foundation in place	H. A. Miller, Chn. Riv. Basin Com.
Oklahoma	Anadarko	Mar. 15, 7 p.m.	Furn. combination chemical and hose wagon; 40-gal. cap.; 2,000 ft. hose and nozzles; 450 ft. shackle bars	J. A. McCampbell, City Clerk.
Pennsylvania	Pottsville	Mar. 16, 7:30 p.m.	Bldg. engine house for American Hose Fire Co.	G. A. Berner, Sec'y Am. Hose Fire Co.
Connecticut	New Haven	Mar. 16, 8 p.m.	Furn. 2,000 ft. 2 1/2-in. fire hose	S. J. Metzger, Sec'y Bd. Fire Comrs.
New Jersey	Irvington	Mar. 16, 8 p.m.	Bldg. fire house	M. Stockman, Town Clerk.
Pennsylvania	Easton	Mar. 22, 8 p.m.	Bldg. incinerator, 25 and 35 tons, for disposal of garbage, ashes, etc.; only one plant to be erected; check \$1,000	John McNeal, City Eng.
New Jersey	Plainfield	Mar. 22, 8 p.m.	Furn. combination chemical and hose wagon	Jas. T. MacMurray, City Clerk.
Massachusetts	Newton	Mar. 22, 2 p.m.	Collection and disposal of house offal, for 3 years from May 1	Al. M. Russel, Clk. Bd. Hlth. W. New
South Carolina	Sumter	Mar. 23, noon	Furn. 3,500-lb. hook-and-ladder truck, equipped with 150 ft. ladders, three 5-gal. chemical tank or 2 each of 3 and 5-gal. extinguishers, f.o.b. Sumter	C. M. Hurst, City Clerk.
Massachusetts	Boston	Mar. 30	Bldg. Section 1, tunnel under Beacon Hill	B. Leighton Real, Rapid Trans. Com.
New York	Albany	Mar. 31, noon	Barge Canal contracts 29, 32 and 36	F. C. Stevens, State Supt. Pub. Wks.
Wisconsin	Milwaukee	Mar. 31, 10:30 a.m.	Bldg. refuse incineration plant, complete, except superstructure of bldg. and chimney, as stated in Feb. 10 issue	Chas. J. Poetsch, Chm. Bd. Pub. Wks.
Dist. of Columbia	Washington	Mar. 31, noon	Furn. and placing riprap stone on sea-wall	J. J. Morrow, Major Engineers.
Iowa	Des Moines	Mar. 31	Furn. brick, cement, lumber, pipe, Fire Dept. supplies, etc.	Geo. F. Porman, City Clerk.
Uruguay, S. A.	La Paloma	Apr. 2	Construction of harbor	Dept. of Pub. Wks., Montevideo.
Indiana	Lebanon	Apr. 5, 1 p.m.	Remodeling the County jail	B. F. Herdrick, County Auditor.
New York	New York	Apr. 15	Furn. petrol motor hose wagon for Shanghai, China	Fearon, Daniel & Co., 69 Wall St.
Illinois	Chicago	Sept. 15	Furn. voting machines up to \$100,000 value	Election Commissioners.

STREET IMPROVEMENTS

Mobile, Ala.—Council has authorized a \$320,000 bond issue for paving all improved principal streets running east and west in the downtown district.

Texarkana, Ark.—City is about to construct 10 miles of concrete sidewalks.

Sacramento, Cal.—A rock crushing plant which will cost \$150,000 and which will be equipped with the very latest machinery for breaking up cobbles, will be constructed at once by the Natomas Consolidated of California, near the Fair Oaks depot; plant will have a capacity of 1,500 tons of rock in ten hours, which will be sufficient to keep all of this section of the State sup-

plied.—Albert Hanford, Manager of the Rock Crushing Department.

San Bernardino, Cal.—Property owners have asked that G street be paved from Second to Ninth streets, instead of from Third to Ninth, as originally planned.

San Jose, Cal.—Council has ordered the improvement of First street.—V. M. Trace, Street Superintendent.

New Britain, Conn.—Citizens are urging the paving of Main street.

Waterbury, Conn.—The Board of Aldermen has recommended the following petitions for curb and sidewalks to the Board of Public Works: Oak street, Highland avenue, Roseland avenue; the layout of Bank street between West Sixth street and High-

land avenue; Board proposes widening this street from forty to forty-five feet; W. J. Moss wants the total width of the street fifty feet.

Jacksonville, Fla.—The Jacksonville Automobile Club is enthusiastically in favor of bonding the County for the purpose of constructing more good roads.

Tampa, Fla.—Citizens are considering bond issue for street paving.

Ottawa, Ill.—The Board of Local Improvements is considering the paving of Clinton street.

Corydon, Ind.—Gravel road bonds to the amount of \$40,000 have been sold to the Marion Trust Company, of Indianapolis, to construct a free gravel road in Jackson township this county, but it has been dis-

covered that the cost of the construction will exceed the 4 per cent. of the taxable property of that township, and the road may not be built.

Evansville, Ind.—A petition has been received by the Board of Public Works signed by nine property owners along Chandler and Jefferson avenues and Garvin street asking for the paving of Garvin street with asphalt and artificial stone, curb and gutter; fourteen property owners along Main street and Cleveland avenue have petitioned for the improvement of the sidewalks along those streets.

Evansville, Ind.—The Board of Public Works is considering the improvement of streets in the Morton section; also a petition for the paving of North Governor street.

Fort Wayne, Ind.—The Wabash Railroad Company has complied with the track elevation resolution of the Board of Public Works and filed plans and estimates for its part of the work of eliminating the grade crossings at Calhoun street and Fairfield avenue.

Indianapolis, Ind.—Resolutions for street improvements, the cost of which is estimated at \$54,248.77, have been approved by the Board of Public Works; largest improvements contemplated are paving East Georgia street and East Maryland street, from Noble to Leota streets, with brick; estimated cost of these improvements will be \$17,961.38 and \$19,935.39, respectively; the Board of Works has adopted the following improvement resolutions: First alley east of Park avenue, brick roadway; Dye street, cement walks and curbing; Barnes avenue, cement walks and curb; Arlington avenue, cement walks; Chestnut street, cement walks, curbing and sodded lawns; Bolton avenue, cement walks; Thirty-first street, asphalt roadway and brick gutters; Georgia street, brick roadway and curbing; Maryland street, brick roadway and curb; also with brick, Hamilton and Olney streets; with asphalt, Washington, Linwood, Twenty-ninth streets and Washington boulevard, and cement sidewalks on Schurman street.

Indianapolis, Ind.—A perspective for a boulevard or parkway system along White River and Fall Creek, from West Washington street to Thirty-eighth street, has been received by the Board of Park Commissioners from George E. Kessler, the Board's landscape architect; plans have not been adopted, and the work is not contemplated immediately, although it is in direct line with what the Board and Mr. Kessler hope to work out some time in the future.

Noblesville, Ind.—Commissioners of Hamilton County will soon receive bids for a gravel road.

Petersburg, Ind.—Election for improved gravel roads in Jefferson Township, Pike County, has been carried; system of road voted for includes nearly 22 miles of the best macadam at an estimated cost of \$64,000; Township includes the town of Otwell; contracts will be let now for the building of 11 miles of this system, the rest to come later under the extension law.

Rushville, Ind.—Citizens have voted to build twelve miles of free pike in Anderson County.

Vincennes, Ind.—The Board of Works is considering improvement of Burnton street; City Civil Engineer Hershey has filed his estimates on the proposed improvement on Tenth street; cost of the sidewalks and stone curbing from Oak to Willow streets is estimated at \$7,206.26, while the estimated cost of improving the block from Willow to Prairie by grading and graveling, sidewalk and curbing, is \$2,007.30.

Vincennes, Ind.—The Board of Works has ordered City Civil Engineer Hershey to draw up a resolution for the improvement of Barnett street.

Boone, Ia.—Plans are being prepared by City Engineer K. C. Kastberg for brick paving in various streets.

Council Bluffs, Ia.—The Board of Aldermen is considering plans for Spring street improvements, the paving of Benton and Logan streets, Kappel and Ninth avenues, Tenth, Grant, North Second and Avenue B.

Sioux City, Ia.—The Greenville Improvement Association has appointed committees to present to the City Council and the Mayor the improvements desired; among these improvements are cement sidewalks, five feet wide, on the north side of the Milwaukee tracks; on Second street; on the north side of Logan street, and on Grace street to Garfield avenue; Committee will also ask for crossings on Leech and Dace streets and on Alice avenue; Committee which will place this matter before the Council is composed of H. Rice, J. Browdin and J. Hinsey.

Fort Scott, Kan.—Plans for several blocks of asphalt paving are being prepared by City Engineer R. D. Stroude.—J. O. Brown, City Clerk.

Leavenworth, Kan.—Council has ordered

the paving and curbing of Walnut street.—J. H. Kirkmeyer, City Clerk.

Pittsburg, Kan.—City is considering the paving of Joplin, First and Locust streets.—O. T. Jones, City Clerk; L. D. Corneliuss, City Engineer.

New Orleans, La.—Plans and specifications for the paving of Carrollton avenue, from St. Charles avenue to City Park avenue, and for the paving of Louisa street from Royal street to Urquhart street, estimated to cost approximately \$800,000, of which the city's portion will amount to about \$500,000, will be completed very soon; contracts for these improvements will be adjudicated within the next 60 days and work shortly thereafter commenced, and the former will be completed before this time next year and the latter during the approaching summer; in addition to these two proposed improvements, Council has before it petitions for the paving of some 15 or 20 streets, and contracts for these will be adjudicated as soon as this Department can prepare the plans and specifications and the City Council can provide for the payment of the city's portion of the cost.

New Orleans, La.—The Commissioners of Gentilly avenue, Xavier Grillo, Secretary, have adopted resolutions with regard to the improvement of Gentilly road, by putting on new sidewalks, planting trees between the sidewalk and the road with live oaks, and between the oaks Washingtonia Robusta palms and Sabal Palmetto or Mexican; also crepe myrtles at intervals of 20 feet.

Baltimore, Md.—The Colonial Park Estates Company will soon lay cement pavements, including 5,000 linear feet, about four feet wide, opening and grading 3,600 linear feet of streets and other improvements; cost, \$10,000.—L. G. Turner, 208 Union Trust Bldg.

Baltimore, Md.—The Board of Awards will receive bids, March 10, for grading, curbing, guttering and paving with improved paving Remington and First avenues, and Thirtieth street, from Huntington to Remington avenue.—James H. Smith, President Commissioners for Opening Streets; J. S. Thomas, City Registrar.

Baltimore, Md.—The Board of Public Improvements has approved ordinance for repaving Fremont avenue, Carey street, Mount street; also opening of Seventh street.

Acushnet, Mass.—Town has appropriated \$3,000 for highways and bridges.

Chicopee, Mass.—The Highway Department has received petitions for the resurfacing of West street; cost, \$2,000; macadamizing extension of Prospect street, Wilimansett; macadamizing Sheridan street extension; macadamizing Springfield street; cost, \$10,000; resurfacing Broadway as far as \$2,000 will go; macadamizing Belcher street; cost, \$1,500.

Dartmouth, Mass.—Town has appropriated \$3,000 for constructing a shell road.

Holyoke, Mass.—The Board of Public Works is considering the paving or macadamizing of Newton street.

Lawrence, Mass.—City is considering the paving of Essex street.

Manon, Mass.—The Highway Survey has recommended a \$6,000 appropriation for roads, bridges and sidewalks.

Rehoboth, Mass.—Town has voted the paving of the gutters on Long Hill macadam road, \$35,000 for maintenance of highways, and \$1,200 for macadam paving on Tremont street.

Springfield, Mass.—The Sewer Committee has under consideration the proposed extension of Chapel street and will probably report favorably on the project.

Wareham, Mass.—Town Council has appropriated \$5,500 for building stone road; stone road will be continued from East Wareham to Wareham; \$1,000 has been appropriated to buy a cargo of shells for repairing shell road near East Wareham station.

Manistee, Mich.—Bids will be received about April 1 for paving six blocks with brick or bitulithic; cost, \$14,000.

Minneapolis, Minn.—Paving to the amount of \$304,000 was ordered by the Paving Committee of Council; amount available is \$440,000, and the balance will be distributed in the First, Tenth, Eleventh, Twelfth and Thirteenth Wards; most important work decided upon was the paving of Lake street from Nicollet to Hennepin avenues, at a cost of \$56,900; another stretch from Fifteenth to Cedar avenues was also ordered improved at a cost of \$16,700; other pavement ordered is as follows: Fifth street, S. E., creosote block, \$8,992; Sixth avenue, S. E., brick, \$9,242; Plymouth avenue, sandstone, \$10,824; Sixth street, sandstone, \$7,845; Fifth street, from Eleventh avenue to Sixth street, sandstone, \$1,717; Penn avenue, sandstone, macadam, \$11,940; Logan avenue, macadam, \$9,702; Twelfth avenue, macadam, \$1,184; Eighth avenue, macadam, \$1,826; Tenth avenue, macadam, \$1,485;

Thomas place, macadam, \$1,747; Harmon place, creosoted wood blocks, \$19,841; Hennepin avenue, creosoted blocks, \$20,000; Douglas avenue, creosoted blocks, \$13,238; Western avenue, brick, \$6,750; Sixth avenue, creosoted blocks, \$14,146; Eleventh street, creosoted blocks, \$7,719; Sixth street, creosoted wood blocks, \$11,201; Ninth street, creosoted blocks, \$21,511; Lake street, creosoted blocks, \$16,700; Lake street, from Hennepin to Nicollet avenues, creosoted blocks, \$56,900; Nicollet avenue, creosoted blocks, \$15,462; Adams street, creosoted blocks, \$22,444; Kettle River Quarries Company was awarded the contract for furnishing creosoted wood blocks at a cost of \$1.58 a yard.

Independence, Mo.—Council will pave portions of River boulevard and Liberty street with Hassam pavement.

Manchester, N. H.—Council has granted \$10,000 for paving streets during year; \$7,000 for macadamizing; \$7,500 for paving Elm street and \$5,000 for Notre Dame avenue; also \$2,500 for macadamizing Union avenue.

Camden, N. J.—The Board of Trade of Collingswood are objecting to the evident purpose of the Camden County Board of Freeholders to build a new road or boulevard between Haddonfield and Camden, to the exclusion of further improvement of the Haddonfield turnpike.

Newark, N. J.—The Board of Street and Water Commissioners are considering the improvement of various streets as follows: Pearl street, brick; New York avenue, bitulithic, and Union court, brick; also the repaving of Market street.—M. R. Sherard, Chief Engineer.

Newark, N. J.—Proposals will be received March 10, 4 P. M., by the Committee on Public Buildings of the Board of Chosen Freeholders of Essex County, for the construction of the walks and drives on the grounds of the County Hospital at Overbrook.—James Owen, County Engineer.

Paterson, N. J.—The Board of Works has received petitions for the paving of Lawrence street with a block pavement and the grading of Leslie street.

Perth Amboy, N. J.—Council is considering the establishment of a grade on Brace avenue; a petition has been received for the repaving of Smith street from State street to High.—Wilbur La Roe, City Clerk.

Perth Amboy, N. J.—County Engineer Morgan F. Larson and State Road Commissioner Gylkison are looking over maps of the eleven county roads in Middlesex which the Board of Freeholders will improve during the coming summer; most of them will be graded and macadamized, but the Board of Freeholders, assisted by their Engineer, would have Smith street from Public School No. 4 westward, paved with something better than macadam on both sides of the trolley tracks to the top of the hill just beyond the old water works; other county roads, for which plans are about complete, are: the Trenton-New Brunswick turnpike, South River turnpike, Plainsboro-Cranbury road, New Market road to Plainfield, Milltown road, Deans road to Franklin Park, road from Helmetta to Spottswood, Jamesburg-Helmetta road, and Jefferson avenue in Dunellen, an inter-county road between Middlesex and Union counties; Middlesex county is only to pay for a portion of the pavement of that highway.

Plainfield, N. J.—Council is considering extension of West Fifth street and the macadamizing of Union street, Stella, Madison, Dawes and Compton avenues and Ravine road; \$110,000 bonds will be issued.

Albany, N. Y.—Council is considering the improvement of Morris, West Lawrence, Van Woert streets and Myrtle avenue.

Brooklyn, N. Y.—Citizens are objecting to the proposal of the Board of Estimate to pave Flatbush avenue extension from Manhattan bridge to Fulton street before construction of subway underneath it; cost, \$124,000.

Cortland, N. Y.—Assemblyman Charles F. Brown has presented to the Highway Commission in Albany the matter of extending the State trunk line road through the village of Homer, a distance of about one mile.

Fulton, N. Y.—The Board of Public Works will pave portions of Oneida, Hannibal, West Third, South First and East Broadway; cost, \$65,530.

Inwood, L. I., N. Y.—Village is urging the improvement of Sheridan boulevard, from Bayview to McNeil avenue; matter has been taken up by the Inwood Improvement Society and a committee has been appointed to see the County authorities in reference to bringing it into the system of County roads.

Newburgh, N. Y.—City Engineer W. J. Blake is preparing plans for the resurfacing of North Water street.

New York, N. Y.—Bids will be received March 10, 2 p. m., for repairing asphalt block pavement in the Borough of Manhattan;

regulating, grading and paving with asphalt block pavement on concrete foundation the roadway of Tenth avenue; widening and repaving with sheet asphalt pavement on concrete foundation the widened roadway of Fifth avenue, from Twenty-fifth street to Forty-seventh street; furnishing and delivering 1,000 cubic yards of trap rock broken stone and 1,000 cubic yards of trap rock screenings; furnishing and delivering 9,000 cubic yards of sand.—J. F. Ahearn, President Borough of Manhattan.

New York, N. Y.—Bids will be received by the Department of Parks March 11, 3 p. m., for furnishing and delivering Roa Hook gravel, or gravel of equal quality, on parks and parkways, in the Borough of Manhattan.

New York, N. Y.—The Flatbush avenue extension to the Manhattan bridge will be paved with granite, regardless of the prospects for a future subway; the Board of Estimate has accepted a plan for paving advanced by Engineer Nelson P. Lewis.

Rochester, N. Y.—Council has ordered the improvement of Plymouth avenue; cost, \$46,500; Howard street; cost, \$27,000; Darwin street; cost, \$5,000, and cement sidewalks on West street; cost, \$1,000.—Wm. Ward, City Clerk.

Rochester, N. Y.—The Streets and Sewers Committee is considering an ordinance for the care and maintenance of East avenue; cost, \$5,000; also the opening of two streets.

Syracuse, N. Y.—The Board of Supervisors has petitioned new State Highway Commission to improve road extending a distance of nearly 11 miles across the towns of Lysander, Clay and Cicero, and connects the village of Baldwinsville and Cicero; according to the plan of the Board's Committee on Highways, Bridges and State Roads, the road would become an extension of the Cicero-South Bay road, now in process of construction; latter will be 3.526 miles in length and will cost \$33,100; proposed highway will cost \$110,000; the first joint county and town road ever proposed in Onondaga county has been ordered by the Board; road in question is about one mile in length and is located in the town of Marcellus, extending from Rose Hill to Rose Hill Station; total cost of the road is expected to be \$8,500.

Syracuse, N. Y.—Council is considering the paving of Butternut street, the grading of Comstock place and the paving of the gutters with cobblestones and the grading of Dellaye avenue has been ordered.

Syracuse, N. Y.—City will pave Burnet avenue; cost will be \$114,600 if sheet asphalt, vitrified brick or block, bitulithic or bituminous macadam should be specified; \$155,850 if sandstone or creosoted wood block, and \$135,700 if brick is used.

Bellefontaine, O.—Council will pave a portion of South Detroit street with brick.

Bucyrus, O.—The Pike Road Commissioners of this district are looking over plans for the work of the year; about seven or eight miles will be built; Commissioners will pave a part of Irving street and Whetstone street, but rest of work is undecided; petition will be presented asking for the improving of Southern avenue from Sandusky avenue east.

Columbus, O.—A petition signed by W. F. Rings and others for the improving and repaving of a county road beginning at the Franklin and Union county line to the Dublin and Union county free turnpike road near Sandy school house, will be publicly heard and considered by said Board of Commissioners of Franklin County March 10; distance, 3½ miles.—John Scott, Clerk.

Dayton, O.—City Engineer Cellarius has submitted an estimate from \$13,709.20 to \$30,888.54, according to the kind of paving, on the improvement of Xenia avenue, from St. Paul to Bowen street.

Delaware, O.—Bids will be received March 20 for \$31,727 West William street improvement bonds.—F. King, City Auditor.

Lima, O.—City is considering the repaving of West Market street.

Ravenna, O.—Bids will be received March 22 for \$16,000 street improvement bonds.—E. W. Marvin, Village Clerk.

Springfield, O.—City will pave Wittenberg avenue at a cost of \$21,527.

Toledo, O.—County Commissioners Campbell, O'Neill and Toole are preparing to advertise a \$1,000,000 bond issue to raise funds to take care of the County roads this year.

Wilmington, O.—Council and Mayor Hartmenwell visited Xenia to collect information concerning paved streets.

Chester, Pa.—B. C. Fox, President Board of Trade, is urging the borrowing of \$500,000 for the improvement of streets and sewerage system.

McAlester, Okla.—Council has ordered the improvement of Main street, Grand avenue from Main street to First street, Grand avenue from Second street to Sixth street, Washington avenue, Adams avenue, Second, Third, Fifth, Sixth and Eighth streets.

Celilo, Ore.—State House of Representa-

tives has voted \$75,000 appropriation for the extension of the Portage Road around Celilo Falls from Celilo to the big eddy.

Harrisburg, Pa.—Finance Committee has appropriated \$500 for new crossings, \$5,250 for grading and surfacing earth streets and scraping streets; \$1,000 for broken stone, etc., and \$1,000 for relaying sidewalks and new sidewalks.

Knoxville, Pa.—Bids will be received March 10, 8 P. M., for grading and paving McKinley avenue.—Wm. Donley, Borough Engineer, 1806 Brownsville road; August Belmsmeyer, Chairman Street Committee.

Oil City, Pa.—Brick paving will be laid on one mile of streets.—John A. Hart, Burgess.

Jonesboro, Tenn.—The Road Commissioners of Washington County have adopted routes and mileage for roads to be constructed with \$150,000 bond issue; total length, 37 miles.

Fort Worth, Tex.—Belknap street will be paved for a distance of eleven blocks from the Court House square to Hampton street, one block west of the Denver road; Committee, headed by James O'Dowd, has secured 78 per cent. of the total property holders' signatures to the petition and asked permission to go before the City Commission with a request that an order be issued so that the work could be commenced.

Hempstead, Tex.—The Attorney General has approved the \$18,000 Woods County road and bridge bond issue.

Houston, Tex.—All bids for paving Hardy street and West Montgomery road have been rejected.—J. E. Ashe, County Auditor.

Mineral Wells, Tex.—Property owners on Mesquite street, from the Weatherford, Mineral Wells and Northwestern Railway to the end of the street north, have about perfected arrangement to pave the street; work of paving will be commenced within the next few weeks.

Taylor, Tex.—The Street and Alley Committee has been instructed to build another half mile of macadam street from the City Hall to the City Cemetery.

Dinwiddie, Va.—Citizens have voted \$100,000 bonds for road improvements in Dinwiddie County.

Hampton, Va.—Elizabeth City County Supervisors are considering construction of stone boulevard from Hampton to Newport News.

Lynchburg, Va.—Council will consider the issuance of \$300,000 of bonds; \$100,000 for street improvement, and \$200,000 for a new high school and three grammar schools.

Norfolk, Va.—The Board of Aldermen has adopted an ordinance for the improvement of Graydon avenue, at a cost of \$11,490; also for improvement of May avenue, cost, \$3,834; also a resolution from the Board of Control for an appropriation of \$7,255 for account of repairing streets.

Norfolk, Va.—The Board of Control has forwarded to Councils a heavily signed petition from taxpayers of the city asking that asphalt paving be continued in Mowbray Arch, from Mill street to Olney road.

Norton, Va.—Council has passed a resolution asking for an election the last of April on \$50,000 bonds for street improvements and sewer construction.—J. J. Body, Secretary.

Roanoke, Va.—Roanoke County Civic Betterment Club will expend \$10,000 for road improvements in County; city will add \$2,500 to this amount.

Puyallup, Wash.—City Engineer D. P. Wheeler has been instructed to prepare plans and an estimate of cost for concrete sidewalks on Meridian street from the alley north of Tacoma street to Park avenue, and a block or two from Meridian street, on all streets intersecting it in that distance.

Puyallup, Wash.—The Puyallup Improvement Club is urging street improvements, particularly parking along the sidewalks. J. P. Leavitt, Secretary.

Seattle, Wash.—Council has ordered the following work: Thirtieth avenue south, grading; Valley street, walks; Eighth avenue, planking; Calhoun street, grading, and West Fifty-first street and others, grading.

Seattle, Wash.—\$18,000 has been appropriated by the County Commissioners for the planking of Greenwood avenue from Eighty-fifth street to Sixty-seventh street.

Seattle, Wash.—City Engineer R. H. Thomson, has estimated the cost of grading and curbing Thirtieth avenue, South Ravenna boulevard and Calhoun street at \$85,700 and concrete walks on Valley street at \$12,300.

Tacoma, Wash.—Council has adopted the report of the Streets and Alleys Committee granting the petition for the removal of the bridge on North Tacoma avenue; street is to be carried around the gulch; improvement includes the paving of Tacoma avenue and a number of adjoining streets north of the gulch.

Wenatchee, Wash.—The \$30,000 bond is-

sue has been disposed of to the Harris Trust Company, of Chicago, at a price equal to 4½ per cent. and a premium of \$471; by the sale of these bonds the city will be able to take up the work of carrying out the plan of regrading Wenatchee avenue, the principal business street of the city, and it is expected that the end of the year will see the work completed; the work will involve an expenditure of \$70,000 or \$80,000.

New Cumberland, W. Va.—Citizens will vote March 20 on \$200,000 bonds for improving highways.

Beloit, Wis.—The City Engineer, R. R. Caldwell, has been instructed to make a profile of Summit avenue; estimates have been submitted to the Board of Public Works for improving Portland avenue with 3-inch and 18-inch stone curbing or cement curb, or 18-inch cement gutter, with macadam center consisting of 8-inch rubble bottom with 4-inch crushed granite top.

Shawano, Wis.—Bids will be received in May for stone and tar paving; cost, about \$18,000.—A. L. Hillis, of Marinette, Engineer; D. E. Wescott, City Clerk.

Winnipeg, Man., Can.—City has extended time for receiving tenders for supply of from 2,500 to 3,500 tons of asphalt for street paving until March 10th.—M. Peterson, Secretary Board of Control.

BIDS RECEIVED AND CONTRACTS AWARDED

Pomona, Cal.—T. T. Crawford has been awarded contract for grading and graveling Huntington Boulevard for a distance of two miles.

Upland, Cal.—The official figures of the bid of Rose & Wilson, who were awarded contract for street work, as stated last week, follows: 6-inch macadam, \$.0531 per square foot; oil tamped pavement, \$.0141 per square foot; cobble stone gutter, \$.3122 per linear foot; there will be 3½ miles of macadam pavement, 18 feet wide, bordered on each side by 6-foot oil-tamped pavement 3½ miles cobblestone gutter, 7 feet wide and 20 concrete arch culverts.—R. C. Norton, City Clerk.

Thomasville, Ga.—J. C. Strawbridge, of Philadelphia, one of the winter residents of this city, has closed a contract with W. H. Bibb, Jr., to lay Broad street where the macadamized road ends, to the entrance of the Country Club, at Glen Arven; work will be commenced at once.

Chicago, Ill.—M. H. McGovern, Feb. 26, received three contracts from the Board of Local Improvements to relay asphalt pavements at \$1.90, \$1.94 and \$1.99 a square yard; twenty-two contracts for street paving were also let; they were: Cypress street, at \$1.94 a square yard, \$10,160; West Thirty-second street, at \$1.99 a square yard, \$3,556; West Thirty-fourth place, at \$1.90 a square yard, \$10,460; prices on the other contracts varied from \$1.87 to \$2.11 a square yard.

Bedford, Ind.—The County Commissioners March 2 let the contracts for the building of three gravel roads, at a cost of \$8,223; in addition to these roads, contracts for the building of four new county bridges were let, the successful bidders being the Elkhart Bridge Company, \$1,777; the same company, \$1,627; the Vincennes Bridge Company, \$1,450, and Central States Bridge Company, \$3,360.

Bloomfield, Ind.—County Commissioners have awarded the contract for the construction of two gravel roads in Wright Township and one in Stockton Township to Thomas E. Slinkard, of Lyons, and for one gravel road in Smith Township to James E. Jean, of Worthington; aggregate amount of the contracts is \$24,244.42.

Kentland, Ind.—A contract has been awarded by the County Commissioners for the building of eight miles of macadam roads in Lake township, Newton County, to Stoner & Whiteaker, a local firm, for \$14,377; Newton County now has 144 miles of macadam roads, and petitions are pending for about 40 additional miles.

Noblesville, Ind.—The Commissioners of Hamilton County have awarded a contract for the construction of the Plekle-Vail gravel road to Ewing Shields, of Seymour.

Vincennes, Ind.—The County Commissioners, March 2, awarded contracts for the construction of several gravel roads: For the construction of road petitioned for by Robert Curry, et al., contract awarded to Hennan F. Jones for \$3,983 and bond of \$8,000.

For building of road petitioned for by Thomas Henderson et al., contract awarded to John E. Delisle for \$2,599 and bond of \$6,000. Henry Joice appointed Superintendent.

For construction of road petitioned for by G. Luthermeier, et al., contract was awarded to Louis Phillippi at \$2,772.20; bond

of \$6,500 approved; Gottlieb Luktemeyer appointed Superintendent.

Washington, Ind.—County Commissioners have let four contracts for the construction of gravel roads in Washington Township to Oscar Perkins, an Elmore contractor; estimates aggregate \$15,856.36.

Davenport, Ia.—Bids for the paving of five streets were opened by the Board of Public Works March 2. The McCarthy Improvement Company got Farnam from High to Colorado, Sixth from Warren to Marquette, Seventh from Gaines to Warren, Eleventh from Brady to Harrison, and the Davenport Granitoid Company got Fillmore from Sixth to Taney street. Following are the bids:

Farnam street: McCarthy Improvement Company, excavating, 35 cents; brick paving, \$1.47; curbing, 30 cents. Davenport Construction Company, excavating, 40 cents; brick paving, \$1.60; curbing, 30 cents. Hydraulic Concrete Construction Company, excavating, 35 cents; brick paving, \$1.63; curbing, 32 cents. J. B. Frahm Company, excavating, 40 cents; brick paving, \$1.54; curbing, 32 cents. Independent Construction Company, excavating, 38 cents; brick paving, \$1.62; curbing, 32 cents.

Sixth street: McCarthy Improvement Company, excavating, 44 cents; asphalt paving, \$1.84; brick paving, \$1.84; gutter, 40 cents.

Seventh street: McCarthy Improvement Company, excavating, 35 cents; brick paving on sand foundation, \$1.14; brick paving on concrete, \$1.44; curbing, 30 cents. Davenport Construction Company, excavating, 40 cents; brick paving on sand, \$1.25; brick paving on concrete, \$1.50; curbing, 30 cents. Hydraulic Concrete Construction Company, excavating, 50 cents; brick paving on sand, \$1.20; brick paving on concrete, \$1.60; curbing, 33 cents. Independent Construction Company, excavating, 45 cents; brick paving on sand, \$1.22; brick paving on concrete, \$1.58; curbing, 52 cents.

Eleventh street: McCarthy Improvement Company, excavating, 44 cents; asphalt paving, \$1.84; combined curb and gutter, 66 cents.

Fillmore street: Davenport Granitoid Company, excavating, 38 cents; concrete paving, \$1.25; curbing, 26 cents. Davenport Construction Company, excavating, 40 cents; concrete paving, \$1.25; curb, 28 cents. Hydraulic Concrete Construction Company, excavating, 50 cents; concrete paving, \$1.34; curbing, 31 cents. J. B. Frahm Company, excavating, 40 cents; concrete paving, \$1.29; curbing, 35 cents. Independent Construction Company, excavating, 40 cents; concrete paving, \$1.24; curbing, 32 cents.

Bids on stone: Bids for stone for macadamizing Division street were as follows: Kahl Bros., \$1.44 per cubic yard. Linwood Quarries, \$1.40 per cubic yard.

Louisville, Ky.—The Board of Public Works has awarded contracts for about \$10,000 worth of sidewalk construction work, to be paid for by the abutting property owners bordering along the line of the proposed improvements; other awards will be made later to the lowest bidders on about thirty pieces of additional work; awards were made to Staebler & McFarland for ten pieces of brick sidewalk and four pieces of granitoid; average price for brick construction was 65 cents, and for granitoid, 97 cents per square yard.

Franklin, La.—Council has opened bids for the paving and curbing of the main street of the town; there were six bidders for the contract, and the work was awarded to the firm of Gaily & Clark, of Alexandria, who were the lowest bidders; contract calls for 28,500 square feet of cement sidewalks and 5,200 linear feet of brick curbing.

New Orleans, La.—The Finance Committee, Chairman McCracken, opened bids for crossings, closure rails, etc., for the Public Belt Commission, the bidders being the Bude Foundry and Manufacturing Company, the St. Louis Frog and Switch Company, the Weir Frog Company and the Kilby Frog and Switch Company.

The bidders for the paving of State street sidewalks, from Coliseum to St. Charles, were: John Reusch, W. H. Douglas, C. Hyland & Co., H. W. Bond and the Grasser Contracting Company.

The bidders for sidewalks on State street, from St. Charles avenue to the prolongation of Story street, were: W. H. Douglas, H. W. Bond, C. Hyland & Co. and Jahncke & Co.

The Foster Concrete Gravel Company was the only bidder for furnishing gravel to the repair plant at \$1.85 per yard, and for furnishing refined asphalt to the repair plant the bidder was the Warren Asphalt Paving Company. All of the bids go to the Council and will be referred back to Committee.

Opelousas, La.—R. C. Huston, New Orleans, La., has secured the contract for 35,000 square feet of 4-inch cement sidewalk, at 17½ cents per square foot, and

7,000 linear feet brick curb at 51 cents per linear foot.—J. J. Naff, Acting City Engineer.

Baltimore, Md.—J. A. Kinlein & Co. have received the contract for paving the mall in Patterson Park and for constructing paths in Druid Hill Park; the contract for bricks for the mall was given to the Hudson Cement and Supply Company, at \$16.50 per 1,000.

Loch Raven, Md.—The Maryland School for Boys has awarded contract to Arthur L. Shreeve & Co., 331 Dolphin street, for road construction, at \$10,470.

Boston, Mass.—Bids were opened February 24 by Guy C. Emerson, Superintendent of Streets, for treating about 400,000 square yards macadam roadways in Jamaica Plain and Dorchester for seven months from March 1, 1909, for the suppression of dust and the preservation of macadam road surfaces with calcium chloride, and the contract awarded to the Calcade Process Company, 402 Sears Bldg., at 4 cents per square yard.

Detroit, Mich.—Paving bids of considerable importance were opened February 26 by Commissioner Haarer of the D. P. W.; the lowest bidder for the year's supply of asphalt and asphaltic oil was the Barber Paving Company, of Chicago, whose bid was \$25.90 a ton; last year's supply was about 1,500 tons.

The Indian Refining Company, of Kentucky, gets the contract for flushing oil at \$10.49 a ton; last year about 500 tons were used.

Bids were opened for cedar on concrete paving for six streets, Alexandrine, Beaufait, Harper, Marantette, Mitchell and Sheridan; they were referred to the City Engineer's office to get the cost per square yard. Eliminating the mistakes, one of which amounted to \$1,000, City Engineer McCormick has figured out the cost per square yard of the various bids for cedar paving on five streets, the bids for which were opened by Commissioner Haarer.

The lowest bid for paving Vermont avenue is Julius Porath, his price being \$1.90 per square yard; Hubbard avenue, J. A. Mercier, \$1.87 per yard; Mt. Elliott avenue, F. Porath & Son, \$1.79 per yard; Wight street, T. E. Currie, \$1.95 per yard, and Franklin street, M. E. Ryan & Son, \$1.96 per yard.

The lowest bid for paving Michigan avenue with brick was by F. Porath & Son, \$2.47 per yard. The cost of cedar paving is about the same as last year.

Kalamazoo, Mich.—Contract for paving numerous streets has been awarded as follows: To J. F. Hill, Chicago, Ill., for sheet asphalt paving, and to R. Hystick, Kalamazoo, for brick.—H. A. Johnston, City Engineer.

Minneapolis, Minn.—The following contracts have been awarded: A contract with the Diamond Iron Works for 200 tons special castings, or any part thereof, at the sum and price of \$29.00 per ton of 2,000 pounds. Northwestern Granite Company for 5,000 linear feet or any part thereof of 5x20-inch granite curb at the sum and price of 56 cents per linear foot, straight curb and 66 cents per linear foot for radius curb f.o.b. Minneapolis. New Ulm Stone Company for 2,000 cubic yard or any part thereof of crushed granite at the sum and price of \$2.25 per cubic yard of 2,600 pounds, f.o.b. Minneapolis. Purlington Paving Brick Company for 40,000 square yards or any part thereof of No. 1 repressed paving blocks at the sum and price of 96.8 cents per square yard, f.o.b. Minneapolis. Kettle River Quarries Company for 40,000 square yards or any part thereof of Kettle River sandstone paving blocks at the sum and price of \$1.55 per square yard, f.o.b. Minneapolis. Kettle River Quarries Company for 150,000 square yards or any part thereof of 4-inch creosoted wood paving blocks, Tamarac or Norway pine, at the sum and price of \$1.58 per square yard and filler strips, 3 cents per linear foot, all f.o.b. Minneapolis.

Oxford, Miss.—The city has contracted for concrete sidewalks and graveled or macadamized streets with the lowest bidder, the firm of Ligon & Co., of Dublin, Ga.

St. Louis, Mo.—The Board of Public Improvements has awarded contracts for paving as follows: Barber Asphalt Paving Company, Holland, Bldg., Minerva avenue, \$56,780; Trinidad Asphalt Manufacturing Company, 320 South Twenty-first street, Iowa street, \$11,036; Parker Washington Company, 2309 Penn avenue, Missouri street, \$7,930; Harry F. Heman, Paris street, \$6,677; Suburban street, \$3,585; Jas. T. McMahon, Newhouse street, \$9,982; Blair street, \$9,024; Harry F. Heman, 721 Olive street, Sarah street, \$5,230; Plymouth street, \$3,124; Twenty-second street, \$4,545; Lexington street, \$7,522; Granite Bituminous Paving Company, Maple street, \$5,079; Marcus street, \$12,686; Norfolk street, \$23,218, and Pendleton street, \$23,701.—A. J. O'Reilly, President of Board.

Omaha, Neb.—A. L. Reed, President of the Byron Reed and the Shull Realty Companies, have let the contract for grading the eight-acre tract to J. P. Atkisson & Son, and the lots will at once be put into shape with all paving and sidewalks; the cut requires the removal of 33,000 cubic yards of dirt, while the fill will take 39,000 cubic yards and 6,000 cubic yards must be hauled into make the tract grade. The work will be done by machinery.

Asbury Park, N. J.—Common Council has awarded a contract for a vitrified brick pavement on Springwood avenue to B. F. Sweeten & Son, of Camden, for about 13,500 square yards, with Gleggery brick on concrete, at \$2.29 per square yard, and 2,850 linear feet curb reset, at 45 cents; this means a saving to the taxpayers of \$6,210, as against the proposition to substitute bitulithic. Contractor T. J. McGovern appeared before the Councilmanic Committee and claimed that the bitulithic pavement is a monopoly, declaring the same class of work can be done under open specifications for \$1.90 per square yard as against the bitulithic price of \$2.75.

Asbury Park, N. J.—For paving on concrete foundation, 2,850 linear feet curb and 1,750 linear feet curb reset, United Paving Company, Atlantic City, submitted 22 bids for brick, \$2.40 to \$2.95 per square yard, according to class of brick; for bitulithic, \$2.65 or \$2.75, and curb, 45 cents per linear foot. Hassam Paving Company, 15 William street, New York, N. Y., Hassam pavement, \$1.90 or \$1.98; curb, 40 cents. Atlantic Bitulithic Company, Richmond, Va., six bids for brick, \$2.48 to \$3.21; two bids for bitulithic, \$2.70 and \$2.80; curb, 51 cents. B. F. Sweeten & Son, Camden, N. J., 14 bids for brick paving, \$2.25 to \$2.80; curb, 45 cents. J. F. Shanley Company, 810 Union Bldg., Newark, N. J., 9 bids for brick paving, \$2.39 to \$2.77; bitulithic, \$2.85; curb, 50 cents. N. J. Imperial Road Company, Broadway and Forty-second street, New York, N. Y., Imperial patent, \$1.17 to \$1.94; curb, 40 cents. Standard Bitulithic Company, New York, N. Y., six bids for brick, \$2.53 to \$3.15; two bids for bitulithic, \$2.67 or \$2.77, and curb, 47 cents.—W. C. Burroughs, City Clerk.

Plainfield, N. J.—Rivalry in the matter of bids for the work of furnishing crushed stone to the city for the coming year was renewed at the March meeting of Council between N. B. Smalley & Co. and the Watchung Stone Company. Smalley & Co. won, getting the contract away from Warren B. Travell's concern. The latter, however, gets the contract for furnishing crosswalks, culverts, etc., his bid being the lowest.

N. B. Smalley & Co. submitted the following bid for crushed stone: Fine screenings, 78 cents; ½-inch, 78 cents; 1½-inch, 78 cents; 2½-inch, 70 cents. The bid of the Watchung Stone Company is as follows: Fine screenings, 84 cents; ½-inch, 84 cents; 1½-inch 78 cents; 2½-inch 68 cents. The Watchung Stone Company presented an endorsement from L. W. Page, of the Department of Agriculture, stating that its stone meets every test.

The Watchung Stone Company, Andrew Roach and Patrick Nugent presented bids for furnishing crosswalks, culverts, curbing, etc., but that of the company for the various sizes of stone being 22, 43, 47, 66 and 75 cents a foot, was the lowest and the contract will be awarded the concern. All bids were referred to the Street Committee.

Corning, N. Y.—McGreevy, McGuigan & Baum have been awarded a contract for 3,600 square yards brick paving 4 inches thick, on 6-inch concrete foundation, with 2-inch sand cushion, for \$1.79; 1,800 cubic yards earth excavation, at 35 cents; also 4,300 square yards macadam, 6 to 8 inches thick, at 70 cents; 2,700 cubic yards earth excavation, at 35 cents; 4,100 linear feet concrete curbing, at 60 cents, including gutter 18 inches wide and 8 inches thick. Totals of all bids were: McGreevy, McGuigan & Baum, \$13,380; Stafford & Humphries, McGraw, N. Y., \$14,233; P. D. Conley, Ithaca, N. Y., \$14,266; D. D. Dugan, Olean, N. Y., \$14,665; Costello & Neagle, Elmira, N. Y., \$14,696; J. B. Hurley, Fredonia, N. Y., \$14,703; Collins & Owens, Utica, N. Y., \$14,762; S. C. Bradley, Corning, N. Y., \$14,862; John F. Kerwin, New Brunswick, N. J., \$15,333; Juniata Paving Company, Harrisburg, Pa., \$15,358; Thomson and Matson, Brookville, Ia., \$15,624; S. P. Hull, Cortland, N. Y., \$15,853; R. W. Henson, Geneva, N. Y., \$15,997.

Mamaroneck, N. Y.—The Board of Trustees opened bids as follows, Feb. 24, for grading Ward avenue and constructing a new bridge where that street crosses the Mamaroneck River: George Sargent, Jr., New York, \$17,400; J. N. H. Cornell Company, New York, \$13,571; Rickey-Swan Company, Trenton, N. J., \$10,220; Eldridge & Gramis, Ossining, N. Y., \$9,990; Lafferty & Weir, New York, \$9,700; Merrill-Ruckgaber Company, New York, \$9,479;

Wilson & English, New Rochelle, N. Y., \$9,419; M. Fitzgerald, Hoosick Falls, N. Y., \$9,381; Cincotta & Semachio, Brooklyn, \$9,300; Connor-McIntyre Company, New York, \$9,179; Cement Paving & Construction Company, New York, \$8,950; G. A. Underzagt, New York, \$8,495; Wm. T. McKibb & Company, New York, \$8,472; Frank Cestone, White Plains, N. Y., \$8,325; Ryan-Unmack Company, New Haven, Conn., \$8,290, awarded contract.

Syracuse, N. Y.—The Warner-Quinlan Asphalt Company has been awarded contract by the Board of Contract and Supply for paving South State street for \$19,831.75; proposal was based upon a rate of \$2.05 per square yard for asphalt and 50 cents a linear foot for curbing.

Syracuse, N. Y.—The Board of Contract and Supply, February 25, awarded the contract for repairing asphalt pavements throughout the city to John Young for \$21,325.

Toledo, O.—Garrigan Brothers were awarded two street paving contracts by the Board of Public Service; they will pave Georgia avenue with brick on broken stone foundation, at a cost of about \$4,940; Cambridge street, with brick on broken stone foundation, for about \$3,089.

Hamilton, O.—The complete tabulation of bids for street improvements to be awarded by the Service Board in the near future and which are now in the hands of the Board are as follows:

Bids for grading and graveling Gray avenue and for the construction of cement curbs and gutters were as follows:

Miami Cement Company, \$4,504.60; Northwestern Construction Company, Franklin, Pa., \$4,535; Garver Construction & Transfer Company, \$4,425; J. H. Trunk, \$3,761.50. Trunk did not submit a bid on grading. It is thought the Board will hold the bid incomplete.

Bids for similar work in Elvin avenue were as follows:

Northwestern Construction Company, \$9,566.50; Miami Cement Company, \$9,206.50; Garver Construction & Transfer Company, \$8,992; J. H. Trunk, \$8,903.40.

Bids for grading and graveling North E street and for constructing cement curbs and gutters were as follows:

Garver Construction & Transfer Company, \$6,927.75; Northwestern Construction Company, \$6,969.75; J. H. Trunk, \$6,743.05; Miami Cement Company, \$6,942.29.

Bids for grading and graveling Rhea avenue and for the construction of cement curbs and gutters were as follows:

Garver Construction & Transfer Company, \$1,209.70; Miami Cement Company, \$1,159.30; J. H. Trunk, \$1,213.25; Northwestern Construction Company, \$1,171.77.

For grading and graveling Mason avenue and for constructing cement curb and gutters, the bids were:

J. H. Trunk, \$5,080.50; Northwestern Construction Company, \$5,084; Garver Construction & Transfer Company, \$5,051; Miami Cement Company, \$5,143.41.

Only two bids were received for paving Wood street, from South Fifth to South Front street with sheet asphalt. They were as follows: Andrews Asphalt Paving Company, \$19,816.50; Barber Asphalt Company, \$21,639. The Andrews firm was the sole bidder to pave Court street alley with sheet asphalt, from South Third to South Front street. It bid \$3,208.

St. Bernard, O.—Bids were received Feb. 17 for the improvement of Murray Road, from Carthage Pike to the Miami and Erie Canal, by grading the same to its full width, paving with macadam the roadway, constructing concrete curb and gutters, laying cross-walks, furnishing materials and constructing the necessary drains, culverts and retaining walls, and the low bidders were Moran & Springmeyer, Cincinnati, O., at \$12,141.—George Schroeder, Village Clerk.

Harrisburg, Pa.—City has just awarded three contracts for the resurfacing of Walnut street to Stucker Brothers at \$1.62 for asphalt; other contracts were awarded for paving twelve streets as follows:

Basin alley, James to Sixth street; 1,000 square yards of paving and 660 feet of curbing. Paving—Barber, sheet asphalt, per square yard, \$1.94; Warner-Quinlan sheet asphalt, \$1.96; Central Company, sheet asphalt, \$1.80; concrete, \$1.70; C. P. Walter, bituminous, \$1.69; Stucker Bros. Construction Company, sheet asphalt, \$1.90. Curbing—Granite, Barber, 98 cents per foot; Warner-Quinlan, \$1; Central Company, 89 cents; Stucker Bros., 90 cents; C. H. Davis, \$1.05; C. P. Walter, 87 cents; steel bound granolithic, Barber, 85 cents; Warner-Quinlan, \$1; C. H. Davis, 75 cents. Granolithic, Barber, 60 cents; Warner-Quinlan, 65 cents; C. H. Davis, 75 cents; C. P. Walter, 87 cents.

Green street, Reilly to Maclay; 11,200 yards of paving and 6,250 feet of curbing. Paving—Central Company, \$1.75 for sheet asphalt; Stucker Bros., \$1.76 for sheet as-

phalt. Curbing—Granite, Central, 85 cents; Stucker Bros., 86 cents.

Seventeenth street, Walnut to State. Paving—Central Company, \$1.75 for sheet asphalt; Stucker Bros., \$1.76 for sheet asphalt. Curbing—Granite, Central, 85 cents; Stucker Bros., 87 cents. Requires 1,450 yards of paving and 715 feet of curbing.

Dauphin street, Sixth to Seventh; 1,000 yards of paving and 900 feet of curbing. Paving—Central Company, \$1.50 for sheet asphalt; Stucker Bros., \$1.50 for sheet asphalt. Curbing—Granite, Central Company, 86 cents; Stucker Bros., 87 cents.

Elm street, Sixteenth to Eighteenth; 2,500 yards of paving and 1,700 feet of curbing. Paving—Central Company, \$1.76 for sheet asphalt; Stucker Bros., \$1.75 for sheet asphalt. Curbing—Granite, Central Company, 86 cents; Stucker Bros., 87 cents.

Fifth street, Market to P. R. R.; 400 yards of paving and 240 feet of curbing. Paving—Central Company, \$1.76 for sheet asphalt; Stucker Bros., \$1.78 for sheet asphalt. Curbing—Granite, Central Company, 86 cents; Stucker Bros., 85 cents.

Eighteenth street, Market to Walnut; 2,800 yards of paving and 2,200 feet of curbing. Paving—Central Company, \$1.80 for sheet asphalt; Stucker Bros., \$1.78 for sheet asphalt. Curbing—Granite, Central Company, 87 cents; Stucker Bros., 87 cents.

Zarker street, Sixteenth to Seventeenth; 500 yards of paving and 740 feet of curbing. Paving—Central Company, \$1.76 for sheet asphalt; Stucker Bros., \$1.80 for sheet asphalt. Curbing—Steel-bound granolithic, Central Company, 55 cents; Stucker Bros., 55 cents.

Sixteenth street, Bridge to Forster; 950 yards of paving and 570 feet of curbing. Paving—Sheet asphalt, Barber Company, \$1.94; Warner-Quinlan Company, \$1.96; Central Company, \$1.86; Stucker Bros., \$1.90. Curbing—Granolithic, Barber Company, 60 cents; Warner-Quinlan, 65 cents; Central Company, 60 cents; Stucker Bros., 70 cents.

Reese street, Crescent to Fifteenth; 1,150 yards of paving and 2,550 feet of curbing. Paving—Sheet asphalt, Barber Company, \$1.94; Warner-Quinlan, \$1.96; Central Company, \$1.87; Stucker Bros., \$1.98. Curbing—Steel-bound granolithic, Barber Company, 60 cents; Warner-Quinlan, 95 cents; Central Company, 60 cents; Stucker Bros., 60 cents.

Nectarine street, Kittatinny to Swatara; 430 yards of paving and 970 feet of curbing. Paving—Sheet asphalt, Barber Company, \$1.94; Warner-Quinlan Company, \$1.96; Central Company, \$1.87; Stucker Bros., \$1.99. Curbing—Steel-bound granolithic, Barber Company, Warner-Quinlan Company, Central Company and Stucker Bros., each 60 cents.

Shanklin, South to State; 175 yards of paving and 450 feet of curbing. Paving—Sheet asphalt, Barber Company, \$1.94; Warner-Quinlan, \$1.96; Central Company, \$1.88; Stucker Bros., \$1.95. Curbing—Steel-bound granolithic, Barber Company, \$1.94; Warner-Quinlan Company, \$1.96; Central Company, \$1.88; Stucker Bros., \$1.95.

Walnut, Third to Filbert. Resurfacing—Barber Company, \$1.83 per yard; Warner-Quinlan, \$1.85; Central Company, \$1.75; Stucker Bros., \$1.62.

Greenwood, S. C.—Following are the details of successful bid of Bowe & Page, Augusta, Ga., who secured contract for paving the Public Square, as stated in March 3 issue: 10,000 linear feet brick work, \$13; 670 linear feet 36-inch brick sewer, \$3.60; 240 linear feet 30-inch brick sewer, \$3.20; 935 linear feet 21-inch pipe sewers, \$1.30; 570 linear feet 18-inch pipe sewers, \$1.05; 785 linear feet 15-inch, 90 cents; 1,015 linear feet 12-inch, 63 cents, and 150 linear feet 8-inch, 41 cents; six manholes, each, \$31; 40 catchbasins, each, \$33; 13 track gratings, each, \$6; 4,000 linear feet concrete curb, 38 cents, or granite curb, 30 cents; 1,333 yards granolithic paving, \$1.20; 7,522 yards granite block, \$2.15, and 14,300 yards granitoid paving, \$1.60; total, \$45,170; to be completed in 130 days.—Wilson, Sompayrac & Urquhart, Columbia, Engineers.

Kingsport, Tenn.—The Kreis-French Company, of Knoxville, has been awarded contract for grading of a Y and other sidings at the yards of the Carolina, Clinchfield & Ohio Railway.

San Antonio, Tex.—The contract between the city and F. O. Brown, President of the General Supply & Construction Company, and the ordinance appropriating \$12,000 to pave West Commerce, Jefferson and Navarro streets with asphalt, were completed Feb. 26 by City Attorney Ryan, and will be presented in Council for ratification.

Norfolk, Va.—The Board of Control on Feb. 28 ordered paving materials as follows: From the Wise Granite Company, 555 long tons of No. 2 granite block, at \$2.70 per ton, for Rose avenue; 330 long tons of the same material for Bailey street; 260 long tons of the same for Walke street. From Lineham, Carroll & Company, 250 long tons of No. 1 granite

block, at \$3.70 per ton, for Eighteenth, Nineteenth, Twentieth and Twenty-first streets.

Norfolk, Va.—Proposals for the construction of a macadamized highway from the limits of Berkley Ward, Norfolk, to Great Bridge, Norfolk County, were opened March 2 by the Permanent Road Improvement Commission; contract was not awarded, but all of the bids were taken under consideration, and the successful bidders will be announced later. Guild & Company, of Chattanooga, Tenn.; I. J. Smith & Company, of Richmond; James F. Wrenn & Company, of Norfolk, and Charles McDermott, of Norfolk, submitted proposals for the work.

Bellingham, Wash.—The Board of Public Works has awarded the contract for grading, grubbing and graveling a portion of Lake street for \$23,112, to Chas. E. Lind, of Bellingham.

Spokane, Wash.—The Board of Public Works has awarded contracts for paving as follows: Western Asphalt Paving Company, Sixth avenue, from Stevens to Bernard street, for \$8,997; Mitchell Bros., 1222 Third avenue, for sidewalks on Sprague avenue, \$6,400, and to C. M. Payne, grading, curbing, parking and sidewalks on Sixth avenue, from Magnolia to Regal street, for \$10,698.

Benwood, W. Va.—The Committee on Streets, Alleys and Grades awarded, Feb. 25, contract for the furnishing and laying of 3,000 yards of street paving to Archer & Day, of Bellaire, O.

SEWERAGE

Mobile, Ala.—Special Engineer W. M. Wilson is completing plans for a drainage system; proposed system is to be open and closed canal drainage and will cover the northeastern, middle-western and northern portions of the city; estimated cost, \$750,000.—J. J. McMahon, Secretary Board of Public Works.

Arkadelphia, Ark.—City will soon sell \$100,000 bonds for construction of sewers.

San Bernardino, Cal.—Council has ordered a sewer constructed in Van Ness avenue.

Chico, Cal.—An election is being considered on \$150,000 bond issue for storm sewer, improved streets and City Hall.

Los Banos, Cal.—Citizens will vote, March 16, on constructing sewer; cost, \$30,000; surveys were made by the County Surveyor.

San Diego, Cal.—City Engineer A. F. Crowell has submitted plans for the construction of a deep sewer on Sixth street; estimated cost, \$8,100.

Plainville, Conn.—Town is considering the building of a sanitary sewer system; Dr. J. N. Bull, Town Health Officer, has recommended the bonding of the town for \$75,000 for the work.

Waterbury, Conn.—The Board of Aldermen has recommended the following petitions for sewers to the Board of Public Works: Sarsfield, Merry and Rose streets; also extension of line up Hill street.

Waterbury, Conn.—An estimate has been received by the Board of Public Works for the construction of a storm water drainage system along West Main street, from the railroad trestle to the Naugatuck River; figures compiled by the City Engineer give an approximate expense of \$5,500.

Washington, D. C.—Upon motion of Engineer Commissioner Cosby the following orders have been issued by the Commissioners: That the following water mains be laid and service sewers constructed: 330 feet of 8-inch water main in Kansas avenue Northwest; 370 feet of 8-inch in Kearney street Northeast; 440 feet of 8-inch in Thirteenth street; 460 feet of 12-inch in Fourteenth street between Varnum and Webster streets Northwest, and 800 feet of 8-inch in Webster street Northwest; 537 feet of 8-inch in Lamont street Northwest, and 537 feet, or less, in Keefe place Northwest and 220 feet in Sixth street between Lamont street and Keefe place.

Washington, D. C.—Upon motion of Engineer Commissioner Cosby the Commissioners have ordered a sewer constructed in Seventh street, N. W.

Tampa, Fla.—Citizens are considering bond issue for extension of sewer system.

Gooding, Ida.—City will again take up question of sewerage system about May 15.—Carleton D. Stanley, City Engineer.

Pocatello, Ida.—The Commercial Club is urging the naming of a committee to consider and decide on a definite plan for a sanitary system of sewerage.—W. A. Samms, Temporary Chairman.

Belleville, Ill.—The Board of Local Improvements will receive bids about April 15 for constructing a sewer system in Irish Pond District, to include one mile of vitrified pipe sewer, ranging from 12-inch to 24-inch.—F. Deutschmann, City Engineer; William Wierman and Han. Werner, Committee.

Hegewisch, Ill.—Plans for the \$100,000

sewer system have been accepted by the Board of Local Improvements.

Green Castle, Ind.—City will construct a \$100,000 sewer system; work will begin soon. —Frank Domner, Secretary City Sewer Commission.

Normal City, Ind.—The Local Board has ordered the construction of a sewer in Jackson street.

Princeton, Ind.—Council has voted down proposition to build a \$72,000 sewerage system.

Council Bluffs, Ia.—The Board of Aldermen is considering plans for considerable sewer work in the Sixth Ward.

Muscatine, Ia.—Plans for a new \$4,000 sewer have been prepared by City Engineer Ryan.

Clay Center, Kan.—The Citizens have voted \$14,000 to construct a sewer system.

Pittsburg, Kan.—City is considering the constructing of about 30,000 feet of 8-inch vitrified pipe lateral sewers. —O. T. Jones, City Clerk; L. D. Cornelius, City Engineer.

Franklin, Ky.—The \$20,000 sewer bonds for the town of Franklin with which to build and construct a sewerage system has been sold to the Harris Trust and Savings Bank, of Chicago, their bid being par and accrued interest and \$555 premium.

Baltimore, Md.—City will soon receive bids for the construction of about 20 miles of lateral sanitary sewers. —B. T. Fendall, City Engineer.

Boston, Mass.—Councilman George W. Carruth has secured the passage of a loan order amounting to \$300,000 for sewer construction in the city, and the order was then sent to the board of aldermen for concurrent action.

Chicopee, Mass.—The Highway Department has received petitions for sewers in Marcell street, Aldenville; Mary street and Hampden street.

Everett, Mass.—Plans are being prepared by City Engineer Chris Harrison for sewers in the Northeastern section of city.

Narragansett, Mass.—Town has been given authority by the Legislature to issue bonds, not to exceed \$30,000, for the purpose of providing sewerage in the town.

Gilbert, Minn.—The Village Board is discussing the question of bonding the village for \$40,000 or \$50,000 for a sewer and water system; little will have to be furnished, as the Steel Corporation agreed at the time the Sparta addition was taken in that it would provide a pumping station and dig the trenches for the mains.

Charlestown, Miss.—Citizens have voted \$20,000 sewer and water bonds; systems will be put in at once.

Alliance, Neb.—Plans are being prepared by Andrew Rosewater, of Omaha, for pipe sewers, to cost about \$45,000; bids for the bonds will be received March 15. —W. O. Barnes, City Clerk.

Perth Amboy, N. J.—The State Sewerage Commission has approved the plans of Perth Amboy to build a trunk sewer to empty into the Raritan River at the foot of Sheridan street; system will consist of sewers ranging from a pipe six inches in diameter to a tunnel of brick and concrete of several feet; cost will be about \$80,000.

Plainfield, N. J.—Plans have been completed by Hering & Fuller, of New York, N. Y., for a trunk sewer. —Samuel Townsend, Mayor.

Carlsbad, N. M.—Plans and specifications have been prepared by Burns & McDonnell, Consulting Engineers, Scarritt Bldg., Kansas City, Mo., for sanitary sewers; estimated cost, \$30,000. —James M. Dye, Mayor.

Auburn, N. Y.—Bids will be received about April 15 for the construction of sewers in the First, Sixth and Tenth wards. —J. S. Hanlon, City Clerk; W. T. Wooley, City Engineer.

Brooklyn, N. Y.—Bids will be received March 10, 11 a. m., for furnishing and delivering brick, cement, vitrified pipe, lime and lumber for use by the Bureau of Sewers. —Bird S. Coler, Borough President.

Medina, N. Y.—The Board of Trustees has received a communication from the Sewer Board in the shape of a set of resolutions having to do with the taking over of certain lands necessary for a new street in the western part of the village in which it is proposed to construct the new west side sewer.

New York, N. Y.—Bids will be received March 10, 2 p. m., for furnishing all the labor and material required for sewer and appurtenances in West 177th street, from Fort Washington avenue to Riverside drive. —J. F. Ahearn, President Borough of Manhattan.

Rochester, N. Y.—Plans for the disposal of the entire amount of the city's sewage by a pipe line direct to the lake, at a cost of about \$1,100,000, have been explained to the Public Improvement and Finance Committees by City Engineer Fisher; one of the important features of the plan is the building of a purification plant in Iron-

dequoit, at a cost of \$100,000, to reduce the sewage from solid form, possibly by precipitating it with a limestone solution; proposed line for the sewer is through Irondequoit in a comparatively direct line from the northern limits of the city to Durand-Eastman Park, where it enters the lake, extending out about 7,000 feet; the Committees have taken no action; maps of the route of the pipe line, prepared by Frank L. Pearce and N. Adelbert Brown, Assistants to the City Engineer, have been placed before the Aldermen.

Rochester, N. Y.—Council has ordered the construction of a sewer in Curlew and Villa streets; cost, \$4,500.

Syracuse, N. Y.—Council has ordered an 18-inch pipe sewer constructed in West Lafayette avenue.

Grand Forks, N. D.—The City Engineer has been directed to prepare plans and specifications for the construction of a sewer along De Mess avenue.

Barnesville, O.—Citizens are considering a better sewer system.

Columbus, O.—The Board of Public Service will again take up matters of building a concrete retaining wall about the settling basins at the sewage purification plant. —Henry Maetzel, City Engineer.

Mt. Gilead, O.—Engineer W. B. Eells has sent the plans for new sewer system to C. O. Probst, Secretary of the State Board of Health, for approval; should the plans be satisfactory, they will be returned to the city at once and the work will be begun; in case the plans do not meet the requirements of the Board, however, an engineer will be sent to Mt. Gilead to go over the ground and make the required changes.

Rockland, O.—Council has advertised for bids for the construction of a sewage-disposal plant, to be erected at a cost of about \$6,000; work upon the sewer system is almost completed and the building of the disposal plant will mark the completion of the sewers. —Village Clerk Troy.

Warren, O.—Council has received a petition for a sewer in West avenue.

Youngstown, O.—The Board of Public Service is considering the construction of a system of sewers. —W. H. McMillin, Clerk; F. M. Lillie, City Engineer.

Elk City, Okla.—Citizens have voted \$6,000 for extension of storm sewers; bonds have been sold.

Albany, Ore.—Council will rebuild the Calapooia street sewer.

Chester, Pa.—Select Council has adopted bill providing for the construction of an 18-inch terra-cotta sewer on Welsh street, from Edgemont avenue to Ninth street and on Ninth street from Edgemont avenue to Market street.

Harrisburg, Pa.—Finance Committee has appropriated \$1,500 for repairs to sewers; \$1,000 for new manholes; \$5,000 for new inlets and repairs, and \$3,500 to connect sewers in Paxton Creek with intercepting sewer.

Harrisburg, Pa.—Residents of the upper end of the city are indulging in considerable discussion of the necessity for immediate construction of the sanitary dam in South Harrisburg, as provided for in the city loan of 1902, and some steps may be taken toward obtaining the services of disinterested engineers to investigate present conditions and report thereon, together with such opinions as they may entertain regarding the advisability of constructing the dam and the results therefrom.

Media, Pa.—Council has begun a movement looking toward the ultimate establishment of an underground sewerage system in the borough; a committee, consisting of Dr. E. Marshall Harvey, James H. Sweeney and Maurice Michener, has been appointed to investigate the matter.

Central Falls, R. I.—The Board of Aldermen has received petitions for the construction of several sewers on the West Side.

East Providence, R. I.—Taxpayers of the Watchemoket Fire District have decided to petition the Legislature to revise the district charter so that the construction of sewers might be undertaken; cost, \$75,000. —H. F. Anthony, S. S. Rich and H. S. Babcock, Committee.

Providence, R. I.—Council has adopted resolutions for construction of sewers in Lena, Latham, Saratoga, Hope, Ledge, Silver Spring and Fern streets; also in Oakland and Home avenues.

Florence, S. C.—Estimates on the installation of a sewer system have been forwarded by H. S. Jaudon, Consulting Engineer, Savannah, Ga.

Columbia, Tenn.—Engineer C. J. Akin has made surveys for a new sewer; cost, \$12,000.

Nashville, Tenn.—Council is considering ordinances appropriating \$900 to construct a sewer between Woodland and Holly streets; \$1,850 to construct a sewer in Madison street and Alley 557 from sewer to Tenth avenue, and \$1,500 to construct a sewer in North Fourth street and Alley 331.

Dallas, Tex.—Upon recommendation of

Mayor Hay, Commissioners Sullivan, Doran and Seay have been named by the Board of Commissioners as a Committee to ascertain the best method of disposing of the sewage of the city and to secure estimates on the cost of erecting such a plant as may be necessary.

Plainview, Tex.—The Attorney General has approved the \$12,000 sewer bond issue.

Norfolk, Va.—Council is considering the improvement by drainage of the unimproved property bounded by Armistead Bridge road and the Norfolk & Western right-of-way in one direction, and by Colley and Llewellyn avenues in the other; estimated cost, \$44,700.

Richmond, Va.—The Finance Committee has submitted 1909 budget to Council; this includes \$60,000 for sewers, including Hollywood sewer. —Charles E. Bolling, City Engineer.

Puyallup, Wash.—Dr. H. B. Runnalls, City Health Commissioner, has recommended that the city install septic tanks at the Maplewood and Spinning schools; also that all residents connect their houses with the sewer.

Seattle, Wash.—Council has ordered sewers on East Boston street and Fifth avenue northeast.

Beloit, Wis.—City Engineer R. R. Caldwell has submitted a plan and estimate for a sanitary sewer on Woodward, Barslow and Josephine avenues.

La Crosse, Wis.—Bids will probably be received about April 15 for pipe and brick or reinforced concrete sewers; cost, \$65,000. —G. P. Bradish, City Engineer.

Racine, Wis.—The Board of Public Works is considering plans for the construction of a sewer in La Salle street and Kewanee street; cost, \$3,891.

Waupaca, Wis.—Citizens will soon vote on \$10,000 bonds for the construction of a main sanitary sewer and septic tank.

Hamilton, Ont., Can.—The Sewers Committee has appointed Chairman Jutten and Alderman Allan to procure more land for the proposed west end sewage disposal works; Government will be asked to contribute towards establishing and maintaining the works.

St. Thomas, Ont., Can.—Plans have been submitted to the Provisional Board of Health for a sewage disposal system; cost, \$30,000. —Jas. A. Bell, City Engineer.

BIDS RECEIVED AND CONTRACTS AWARDED

Graymont, Ala.—Contract for constructing 7,000 feet sewer mains has been awarded to R. H. & J. W. Wright, care of City Clerk, 804 John street, Birmingham. —W. A. Lester, Mayor.

El Centro, Cal.—The following bids were opened Feb. 9 by the city for the proposed sewer system: Frick & Ware, \$26,445; J. D. Kneen, of Santa Monica, \$26,501; Arthur S. Bent, \$26,660; M. Magonivich, \$26,891; California Ornamental Brick Company, \$27,219; Lowell & Stevens, \$27,282; G. A. Rogers, \$28,269; C. E. Hubbell, \$28,300; J. W. Martin, \$29,747; W. T. McBride, \$31,139; McIntyre Cement Company, \$30,379; C. D. Vincent, San Francisco, \$30,474; M. L. Hostetter, \$31,000; E. R. Werdin & Company, \$33,482; Newell Bros., \$36,961.

Santa Cruz, Cal.—Contract for constructing 16½ miles of 6 to 12-inch sewers has been awarded by the city to Wolf & Anthony, at \$45,979. —L. G. Williams, City Engineer.

New London, Conn.—Following are bids received by the Water and Sewer Department, W. H. Richards, Engineer and Superintendent, for State street outfall sewer; the T. A. Scott Company, city, being awarded the contract: Amounts to be bid on—T. A. Scott Company—162 feet 30-inch pipe sewer, \$4.07, \$659.34; 110 feet 24-inch pipe sewer, in 6.7-foot trench, \$2.28½, \$251.35; 110 feet 28-inch wood pipe built, \$2.42, \$2,662; 1,100 feet 28-inch wood pipe laid, in 31 foot trench, below mean high water, \$4.81, \$5,291; setting castings and foundation, \$177; 24 cubic yards concrete, \$15, \$360; 1 settling basin and foundation, \$796; 50 bents of piles and wale pieces, \$32.15, \$1,607.50. Total, \$11,804.19.

Amounts to be bid on—Thames Tow Boat Company—162 feet 30-inch pipe sewer, \$4.27, \$691.74; 110 feet 24-inch pipe sewer in 6.7-foot trench, \$2.75, \$302.50; 110 feet 28-inch wood pipe built, \$2.38, \$2,618; 1,100 feet 28-inch wood pipe laid in 31-foot trench, below mean high water, \$5.79, \$6,369; setting castings and foundation, \$185; 24 cubic yards concrete, \$15, \$360; 1 settling basin and foundation, \$790; 50 bents of piles and wale pieces, \$32.95, \$1,647.50. Total, \$12,963.74.

McCay Engineering Company, Baltimore, Md., informal bid, \$9,713. Wages of common labor, \$1.75 per day.

Fitzgerald, Ga.—The Water, Light and Bond Commission has awarded contract to

E. E. Bailey of Fitzgerald for laying water mains; cost about \$5,000.

Chicago, Ill.—The contract for cleaning the Lawrence avenue sewer bore for 2,000 feet from the lake has been awarded to John P. Dougherty at \$4.90 per foot.

Louisville, Ky.—Proposals for a contract for the construction of the Twelfth street sewer were received from representatives of seven big construction companies by the Louisville Sewerage Commission, Feb. 27, and T. J. O'Connell & Company, of Baltimore, Md., submitted the lowest bid, and may get the contract when an award is made within the next ten days. The system is described in the contract as the Twelfth street sewer, 3,900 feet long, extending in a direct line from Twelfth and Wilson streets to Twelfth and Lexington streets. At Twelfth and Wilson streets the sewer, when completed, will connect with Section D of the Southern outfall sewer.

Baltimore, Md.—Bids were opened Feb. 17 for building sanitary sewers, Contract No. 35, and the contract has been awarded to T. Wallace Reilly for \$66,545; other bids received were: Booth & Flinn, Ltd., Pittsburgh, Pa., \$69,387; M. O. Herron & Co., Pittsburgh, Pa., \$68,790; John F. Kerwin & Co., New Brunswick, N. J., \$72,218; A. L. Patterson & Co., Macon, Ga., \$77,700; J. Connelly Construction Company, city, \$81,645; David Peoples, city, \$91,798; the Ryan-Unmack Co., New Haven, Conn., \$91,135, and Ryan & Reilly, city, \$114,293.—Calvin W. Hendrick, Chief Engineer Sewer Commission.

Detroit, Mich.—Bids were again opened by Commissioner J. J. Haarer, March 4, for the Waterman avenue public sewer job. J. A. Mercier was the lowest bidder, his estimate being \$14,130. This makes the fifth bid called for on this sewer, the re-advertising lowering the previous bid each time, until now a saving of \$1,076 has been effected. The lowest bidder on the first bid was J. A. Mercier and on the fifth bid he finds that he can do the work \$1,076 cheaper than he first estimated. The lowest bidders on the other three occasions were George R. Koch, Richard Porath and Ferd Porath, Jr. Jealousy among the contractors and union labor troubles are said to be responsible for the slashing of estimates. One of the aldermen explains the situation by saying that after each bid a contractor or two who has lost out informs the committee that if a re-advertising for bids takes place they will see that lower bids are offered. Several other sewers which have been re-advertised several times are now bid for at much lower prices. The same is true of the roofing of the Eastern market, the bids for which have been rejected four or five times.

Minneapolis, Minn.—The following contracts have been awarded: Wisconsin Red Pressed Brick Company for 1,000,000 Memomonee red sand moulded sewer brick at the sum and price of \$9.25 per thousand, delivered along the line of work. Minneapolis Brick & Tile Company for 1,000,000 sewer brick at the sum and price of \$9 per thousand, delivered along the line of work. Northwestern Lime Company for 10,000 barrels of Atlas Portland Cement or any part thereof, at the sum and price of \$1.15 net per barrel, delivered f.o.b. Minneapolis and cloth sacks not returned, 7½ cents each. Landers, Morrison Christensen Company for 5,000 barrels, or any part thereof, of Austin Natural Cement at the sum and price of 57 cents per barrel, net, f.o.b. Minneapolis, and for sacks not returned, 10 cents each.

Kings Park (L. I.), N. Y.—The bids received by the State Lunacy Commission, Albany, Feb. 24, for the construction of sewerage and sewage disposal works at the Kings Park State Hospital, were as follows: Guinan & Emmons, Brooklyn, N. Y., \$51,400, \$48,500 and \$41,350; Long Island Contracting Co., Astoria, N. Y., \$62,300, \$56,500 and \$53,000; M. Kantrowitz, Albany, \$65,900, \$56,700 and \$60,045; Charles Meade & Co., New York, \$51,400, \$48,500 and \$45,900; Merrill-Ruckgaber Co., New York, \$41,630, \$33,700 and \$35,200; George H. Gifford, New York, \$50,000, \$44,000 and \$43,500; Paladino Construction Co., Brooklyn, \$43,000, \$40,100 and \$35,950; North-Eastern Construction Co., New York, \$37,961, \$36,650 and \$33,534; Ross-Bush Co., New York, \$34,900, \$30,929 and \$31,929; Hicks, Johnson Construction Co., New York, \$44,055, \$41,882 and \$38,955; James Kelly, Brooklyn, \$47,825, \$44,210 and \$42,235; Frank J. Gallagher, Brooklyn, \$62,287, \$55,990 and \$54,237; Murphy Bros., Brooklyn, \$39,998, \$37,997 and \$33,998; McHarg, Barton Co., New York, \$43,700, \$35,700 and \$39,700; James J. Fusco, Newark, N. J., \$27,500, \$21,300 and \$20,500; Enterprise Contracting & Supply Co., New York, \$60,700, \$54,400 and \$55,200.

Rochester, N. Y.—The bids received by the State Lunacy Commission, Albany, Feb. 24, for the construction of sewer and ejector at the Rochester State Hospital, Rochester, N. Y., were as follows: R. T. Ford Co., Rochester, \$4,990; Charles T. Hookway,

Syracuse, \$4,840; Thomas Holahan, Rochester, \$4,804; Houston Barnard, Rochester, \$5,334; Whitmore, Rauber & Vicinus, Rochester, \$4,267; Hoiler & Shepard, Rochester, \$5,865.—F. B. Ware, State Architect, Albany.

Hamilton, O.—The following bids were received by the Board of Public Service for the construction of a sanitary sewer and house connections in Hanover street: W. H. Louthan, \$1,198.52; W. B. Boaz, \$1,100.80; Shaffer & Dill, of Dayton, \$1,229.50; J. H. Trunk, \$1,233.51.

Bids for a sanitary sewer and house connection in South Fifth street, from Henry street to Central avenue, were: W. H. Louthan, \$907.77; W. B. Boaz, \$805.90; Shaffer & Dill, \$350.30.

For similar work in Mason avenue bids were: W. H. Louthan, \$1,648.52; W. B. Boaz, \$1,636.75; Shaffer & Dill, \$1,709.25; Northwestern Construction Company, \$1,737.50; Garver Construction & Transfer Company, \$1,491.50.

For similar work in North E street bids were: W. H. Louthan, \$2,284.02; W. B. Boaz, \$2,809.50; Shaffer & Dill, \$2,388; Northwestern Construction Company, \$2,385.50; Garver Construction & Transfer Company, \$2,133.30.

For a sanitary sewer and house connection in Rhea avenue the bids were: W. H. Louthan, \$755.67; W. B. Boaz, \$835; Northwestern Construction Company, \$797.20; Shaffer & Dill, \$776.30; J. H. Trunk, \$707.91; Garver Construction & Transfer Company, \$668.75.

Wagoner, Okla.—Council opened bids for the construction of the sewer system Feb. 28, and accepted the bid of W. W. Cook & Son, a contracting firm of Junction City, Kan.; successful bidders agree to do the work according to the specifications for \$22,000, beginning work at once, and to turn over the completed system by June 15.

Portland, Ore.—The lowest bid recently received for constructing the Selwood sewer was submitted by Gleibisch & Joplin, 1 East Thirtieth street, for \$84,000.

Wilson, Pa.—Contract for constructing a tile sewer and appurtenances and paving with brick on a portion of Locust street has been awarded to Maynard & Flynn, of Pittsburgh, for \$10,502.—Maneese & Earl, Borough Engineers, 424 Fourth avenue, Pittsburgh.

Denton, Tex.—The Council, Feb. 25, let the contract for the construction of the sewerage system to Messrs. Truehart & Jackson, of San Antonio, and work is to be begun immediately on the plant, which is expected to be in readiness by early next fall; an important feature of the contract is that the contractors agree to use local labor wherever possible and to cut out the use of machines in digging the lines; the work is to cost about \$35,000.

Tacoma, Wash.—Eleven bids were received on the proposal to construct sewers on North Lawrence and North Proctor streets; bidders were A. Tignannelli, \$6,165; Frank Ricco, \$6,447; August Nelson, \$7,525; D. Matheson, \$7,869; A. Fermo, \$7,195; M. J. Hickey, \$6,961; Coast Contracting Company, \$6,995; Lister Construction Company, \$7,237; J. Gallucci, \$6,222; Keasel Construction Company, \$6,604; Swanson & Peterson, \$7,742; contract was awarded to A. Tignannelli at \$6,165; Engineer's estimate was \$8,751.

WATER SUPPLY

Birmingham, Ala.—North Birmingham may issue \$5,000,000 worth of bonds for the purpose of erecting a water works system, according to a decree rendered by Chancellor Alfred H. Benner.

Birmingham, Ala.—Council has passed ordinance granting a franchise to the Birmingham Water Works Company; company will erect a standpipe at Red Mountain.

Newton, Ala.—Citizens have voted \$8,000 bonds for water works.

Colton, Cal.—Town will purchase a small quantity of cast-iron water pipe.

Sacramento, Cal.—W. J. Duval, District Secretary of the Board of Fire Underwriters, has recommended that the city install another pump at the pumping plant.

San Diego, Cal.—City will shortly purchase \$75,000 worth of cast-iron pipe for extension to its water system.

San Francisco, Cal.—The Board of Supervisors has adopted a resolution requesting the Board of Public Works to prepare plans for a dam to be erected at Lake Eleanor and to make the necessary surveys for the new water system.

San Francisco, Cal.—Bids will be received March 10, 2 P. M., by the Board of Public Works, for furnishing and delivering 31,514 tons of cast-iron pipe, with bell and spigot ends, and 13,042 tons with spigot ends.

Colorado Springs, Col.—The Northfield Land and Water Company has completed surveys and filed a plat with the State Engineer for the construction of a new storage reservoir with a capacity of 165,000,000 gallons; reservoir will be located in

the upper West Monument Valley and will require a dam 55 feet in height to fill it.

Collinsville, Conn.—State Senate has passed a bill amending the charter of the Collinsville Water Company so that the company may distribute water in Avon, Burlington and Canton, and in a part of New Hartford, and build a reservoir.

Wilmington, Del.—Chief Engineer John A. Kienle, Water Department, is preparing plans for the further development of the city water power; he proposes installing a turbine pumping plant to pump water to new reservoir; probable cost, \$20,000.

Kissimmee, Fla.—Town is considering installation of a complete water works system.

Lafayette, Ga.—The Lafayette Railroad will purchase a 50,000-gallon tank complete with spout, upright boiler and pumps.—J. A. Kauffman, General Manager.

Vidalia, Ga.—City is considering a \$9,000 bond issue for improving water works and electric light plant.

Centralla, Ill.—Surveyors are looking over a site for a larger storage supply.

Montgomery, Ill.—Citizens will vote April 20 on a municipal water works system.

Pekin, Ill.—Citizens will vote on municipal ownership of water works.

Greenfield, Ind.—Citizens have voted to install a municipal water works system.

Hazleton, Ind.—The National Company, South Bend, is preparing plans and specifications for the construction of water works; cost, \$8,000.

Huntington, Ind.—City will install a pumping station on Front street.

Oakland City, Ind.—The Oakland City Water Works Company is planning to extend the mains and install new machinery.

South Bend, Ind.—Council Committee has favorably reported on proposition of the Board of Public Works to build reservoirs at north and central water works pumping stations.—A. J. Hammond, City Engineer.

Waynesville, Ind.—City will extend and improve the water system.

Aamosa, Ia.—The Water Commissioners have decided to receive no bids for water works improvements, including storage reservoir, meters, mains and appliances, until after new Council is elected.—Geo. C. Morgan, 169 Jackson Boulevard, Chicago, Ill., Engineer and Geo. Beaman, Chairman.

Independence, Ia.—The Board of Control will ask for an additional water supply for the hospital; cost, \$12,000.

Red Oak, Ia.—Council has appropriated \$5,000 for installing a gasoline pumping plant.

Sioux City, Ia.—E. R. Townsend, Engineering Expert, has recommended the installation of a low-service pumping system such as an air lift or equivalent system, discharging directly into the reservoir or pump house site; an increase in gravity reservoir to meet unusual demands that frequently occur; replacing all 4-inch hydrants in the congested district with 6-inch hydrants, thereby increasing the fire flow about 15 to 25 per cent.; installation of a reservoir feed main and minor feeders to increase the circulation; installation of gate valves to prevent shutting off of excessive amount of pipe line owing to breaks.

Sebetha, Kan.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., have completed plans and specifications for the construction of a water works system.

Towson, Md.—The Baltimore County Water and Electric Company will construct reservoir.

New Bedford, Mass.—The Water Board is considering the general installation of a meter system.

Detroit, Mich.—The Department of Public Works has asked the city to install hydrants.—Commissioner Haarer.

Logansport, Mich.—City will purchase the present water works system.

Duluth, Minn.—The Board of Water Commissioners has recommended the extension of a 16-inch supply main connecting directly with the 36-inch force main in Sixteenth avenue East, through city and connecting with 16-inch main in West Third street.

Gilbert, Minn.—The Village Board is considering the bonding of the village for \$40,000 or \$50,000 for a water and sewer system.

Charleston, Miss.—Town voted a \$20,000 bond issue for water and sewerage; Board of Mayor and Aldermen will at once take steps to put in the water and sewerage system.

Corinth, Miss.—Citizens have voted \$8,000 bonds for water works improvement; water works machinery will be overhauled, reservoir erected and pressure pump purchased and installed.—J. P. Collier, Mayor.

Carl Junction, Mo.—City has selected the Nuchel Cook Engineering Company, Frisco Building, Joplin, to prepare plans for a deep-well system of water works; cost, \$20,000.—W. G. Clarke, City Clerk.

Rockport, Mo.—City is considering plans for installing a motor for pumping water in the municipal electric light and water plant.—W. E. German, Manager.

McCook, Neb.—Council has authorized the City Engineer to prepare plans and specifications for municipal water works; cost, \$85,000.

Asbury Park, N. J.—City will install 10 new hydrants.—City Engineer Rogers.

Carthage, N. Y.—Engineer William G. Stone, of Utica, has presented his estimates and specifications of the cost of the proposed new water works system for the village of West Carthage; work can be done for an amount not exceeding \$30,500; plans provide for the taking of the supply of water from the Otis spring in the town of Denmark, at a distance of about three miles from the village limits; it is proposed to erect a standpipe a short distance from the spring, and it is contended that a fall of 280 feet will result; from the standpipe to the spring 10-inch pipe will be used and from the standpipe to the village 3-inch pipe.

Middletown, N. Y.—The Neversink Valley Water Company has been incorporated with a capital of \$10,000,000; company intends to supply Jersey City, Paterson, Passaic and the Oranges with water.—H. C. McBrayer, President, and C. W. Adams, Middletown, Secretary.

Newburgh, N. Y.—The Board of Water Commissioners has received two reports on the proposed raising of the dam at Washington Lake and the laying of a new 24-inch main from the reservoir to the city, one by City Engineer W. J. Blake, Jr., and Consulting Engineer Frederick B. Rogers, and the other by the Special Water Supply Committee of the Business Men's Association; report of the Engineers contained estimates of the cost of raising the dam 3.7 feet, raising the rip-rap walls, raising and repairing the gate house and boiler house, moving the keeper's house and barns and laying a new main, for which 11,350 feet of pipe would be required; total expense is figured at \$131,000, and the engineers made no recommendations.

New York, N. Y.—The Board of Estimate has appropriated \$6,300,000 for head works of Catskill aqueduct, West Hurley dikes, Kingston sewer, clearing reservoir and highways; \$2,100,000 for aqueduct from Rondout siphon to Walkill siphon; \$5,000,000 for aqueduct from Walkill to Mona siphon, including steel pipe siphons at Esopus and Tonaqua creeks and Washington square; \$3,000,000 for six steel pipe siphons between Indian Brook and Croton Lake; \$5,500,000 for aqueduct from a point south of Croton Lake and by-pass to Kensico reservoir; \$10,700,000 for aqueduct from Kensico reservoir to Hillview reservoir, and \$7,000,000 for Hillview reservoir.

New York, N. Y.—The Board of Water Supply has plans for remodeling the high-service pumping station, Ninety-seventh street, including a 20-ton crane in the engine room; cost, \$40,000.

Ogdensburg, N. Y.—Consulting Engineers Hazen and Whipple, 103 Park avenue, New York City, are preparing plans for a \$175,000 filtration plant on the St. Lawrence River.—H. A. Lord, Superintendent Board Water Commissioners.

Oneida, N. Y.—Council is considering the calling of an election on \$75,000 for a new water main.

Ravena, N. Y.—The Hannacroix Water Company is considering plans to extend the water system this spring.

Rockaway, N. Y.—A new plan has been proposed to solve the problem of a more adequate supply of water for the borough during the dry season; it was devised by Stewart M. Neff, of New York, who had been invited by the Water Committee of the Borough Council to assist in finding an additional water supply; Committee, composed of E. J. Matthews, Edward Roegner and T. H. B. Davey, accompanied by Mayor H. W. Mutchler, Marshal C. H. Hull and Mr. Neff, have visited the intake and the borough reservoir near Mt. Hope; all agree that Mr. Neff's plan is feasible, less expensive, and will answer the purpose; it is to transform the wide ravine south of and adjoining the present reservoir into a large storage basin; it would cover from three to four acres and hold about 8,000,000 or 10,000,000 gallons of the water which is now going to waste.

Rome, N. Y.—Engineer Knight has presented plans and an estimate for laying the new pipe line from the reservoir at Stokes to the city; cost, \$27,000.

Schenectady, N. Y.—The National Board of Underwriters has recommended the construction of a \$20,000,000-gallon reservoir.

Franklin, N. C.—Citizens will vote on \$30,000 bond issue for water works and other improvements.

Marion, N. C.—Cothran & Cothran, Masonic Temple, Greenwood, S. C., will prepare plans for water works at East Marion.

Fargo, N. D.—The Committee on Water Works will recommend an election on \$100,000 bonds for a mechanical filtration plant

and an electric lighting plant.—Peter Elliott, Mayor.

Columbus, O.—The Board of Public Service will ask City Council to pass an ordinance providing for the laying of a 36-inch water main from the purification plant in Grubb and Sandusky streets to connect with the 24-inch main at Town or Fulton street.—Director Pearce.

Columbus, O.—The Board of Public Service will lay a 36-inch main as a connecting link of a great belt line water main system; cost, \$125,000.—Director Pearce.

Greenville, O.—Consulting Engineer Gelsler has recommended that the water pumped from Greenville Creek be filtered.

Nottingham, O.—Citizens will vote March 29 on \$25,000 bonds for laying mains and building a water works system.

St. Henry, O.—The State Board of Health has approved plans for a public water supply.

Swanton, O.—The State Board of Health has approved detailed plans and specifications for the development of the public water supply.

Elk City, Okla.—Bonds for city improvements have been voted in the sum of \$35,000; money will be distributed as follows: \$23,000 for a reservoir for the water works; \$6,000 for the extension of the storm sewers, and \$6,000 for a City Hall and fire department building; bonds have already been sold at a premium of \$1.03.

Hartshorne, Okla.—Bids will be received April 12 for the purchase of \$105,000 bonds for water works and sewerage system from plans of O'Neill Engineering Company, of Dallas.—I. D. Patterson, City Clerk.

Minco, Okla.—Burns & McDonnell, Kansas City, Mo., have been selected by city as Engineers for proposed water works; cost, \$26,000.—W. E. Shower, Town Clerk.

Johnstown, Pa.—Stockholders of the Johnstown Water Company have voted to issue \$1,500,000 bonds for the extension of the company's system.

Punxsutawney, Pa.—City will install a 1,000,000-gallon gravity filter plant; cost, about \$20,000.—Charles E. Ratz, Superintendent Punxsutawney Water Company.

Schaefferstown, Pa.—George W. Hayes, of Lebanon, has been selected as Engineer for the enlargement of water supply.

Smithton, Pa.—The South Huntingdon Water Company, of Smithton, has been incorporated and will at once begin the construction of a plant to supply water to Smithton, Jacobs Creek and other Youghiogheny River towns; estimated cost, \$100,000.—Cowan P. Hepler, proprietor of the Big Springs Hotel at Seward, Promoter.

East Providence, R. I.—Taxpayers of the Watchemoket Fire District are considering petition to the Legislature to enlarge the authority now vested in the district to issue \$100,000 bonds for the building and securing of a water plant and the building of sewers.—A. C. Anthony, Moderator.

Seneca, S. C.—J. L. O. King wishes to communicate with pump manufacturers relative to introduction of water elevator for wells.

Ft. Meade, S. D.—A new water supply, cost \$100,000, is being considered.

Platte, S. D.—Citizens will vote on building a water works system.

Chattanooga, Tenn.—City Water Company is considering construction of a reinforced concrete reservoir.

Greeneville, Tenn.—Citizens will vote March 20 on \$40,000 bonds for purchasing or erecting electric light and water works plants.

Nashville, Tenn.—Council has passed ordinances appropriating \$2,000 for purchasing fire hydrants and gate valves, and \$15,000 to purchase and install steam boiler and steam pipes at pumping station.

Denison, Tex.—The Attorney General has approved the \$50,000 bond issue for the construction of the dam at the Randall Farm for an additional city water reservoir.

Elgin, Tex.—J. W. Maxcy Company, Binz Bldg., Houston, has been selected by City as Engineer for constructing water works; plans not completed; bids will be received for internal combustion engines, direct connected to triplex pumps, with a 50,000 or 75,000-gallon standpipe; also for piping, which will include 19,000 feet of 8-inch, 2,300 feet of 6-inch and 5,000 feet of 4-inch with hydrants and valves.

Granger, Tex.—The Granger Oil Mill Company will establish \$35,000 water works system and ice plant.

Houston, Tex.—J. W. Maxcy Company, Binz Bldg., will purchase 19,000 feet of 8-inch, 2,300 feet of 6-inch and 5,000 feet of 4-inch piping; also hydrants and valves.

Houston, Tex.—Plans for extensions to water mains have been prepared by City Engineer T. C. Tarver.

Markham, Tex.—The Progressive Business League has organized a water works company; water main will be laid on Broadway and to south side of Southern Pacific Railway yards.

Plainview, Tex.—The Attorney General has approved \$16,000 water bonds issue.

Port Arthur, Tex.—The Port Arthur Water Company will award the contract at once for the erection of an addition to the plant; cost, about \$3,500; also for a new boiler room 35 by 50 feet.

San Angelo, Tex.—The San Angelo Water Works Company will purchase a cross-compound condensing Corliss engine direct connected to a 425-kw. alternating generator, with belt-driven exciter.

Barton Heights, Va.—Citizens have voted \$15,000 bonds for the construction of water works and a sewer system.—G. B. Taylor, Town Treasurer.

Richmond, Va.—The Finance Committee has submitted to Council the 1909 budget; \$40,000 is included for extensions of water mains and fire protection.—Charles E. Boiling, City Engineer.

Bellingham, Wash.—City Engineering Department will construct the new 18-inch water supply line from the cemetery to James street; cost, \$7,599.

Cheney, Wash.—City will issue bonds for water works extensions.

Seattle, Wash.—City Engineer R. H. Thomson has estimated cost of installing water mains in Eighth avenue South at \$88,200; Sixteenth avenue South, \$12,500, and Twenty-second avenue North, \$3,900.

Spokane, Wash.—The Board of Public Works has received plans for an addition to the Up-River pumping station and for the installation of two additional pumps; estimated cost, \$30,000.

Tacoma, Wash.—Instead of using the ram to furnish water for sluicing dirt down from the north portal of the Union Pacific tunnel to the gulch under the Pacific avenue bridge, a direct line to supply water by gravity pressure will be run from dams No. 1 and No. 2 to the sluice; dam could not furnish more than 350,000 gallons a day; it was found that this is not enough; by running a pipe line from the two dams farther up the gulch more than 1,500,000 gallons can be furnished daily.—Commissioner of Public Works H. J. McGregor.

Follansbee, W. Va.—Council has granted a water works franchise to the Citizens Water Company, incorporated at \$50,000 under the laws of West Virginia; preparations will be made at once to commence the construction of the water plant; cost, \$40,000.

Parkersburg, W. Va.—The Water Works Commission has recommended adoption of water well system and election on \$270,000 bonds for construction of water works.—W. B. Pedigo, Chairman.

Wheeling, W. Va.—Attorney C. E. Morris, representing a company of Wheeling people, has asked the Gas Commission for a 50-year lease of the city gas works and electric lighting plant; \$110,000 bonds would be issued for improvements.

Claresholm, Alta., Can.—Council will ascertain the feasibility of a gravity water system; plans call for water to be brought twelve miles; cost, \$60,000.

Yellow Grass, Sask., Can.—Town will install a water works system.

BIDS RECEIVED AND CONTRACTS AWARDED

Mobile, Ala.—A contract was awarded February 26 to Michael T. Judge and W. I. Emery for the erection of a 25,000-gallon cistern and for doing other work on the reservation at Fort Morgan.

Phoenix, Ariz.—The city has awarded contract for a 3,000,000-gallon crank and fly-wheel, cross-compound Corliss pumping engine to the Prescott Steam Pump Company, at \$10,000.—R. A. Craig, Superintendent Water Department.

Gridley, Cal.—The Nevada Machinery and Supply Company, of San Francisco, was awarded the contract, February 24, by the City Board of Trustees to furnish a pumping plant for the new city water works, the price being \$7,820; plant will include a steam boiler and steam pumps and also electric motor and centrifugal pump, so arranged that both units can be used at the same time, pumping into the mains of the reservoir.

San Francisco, Cal.—The Board of Public Works has awarded to the Healy-Tibbets Construction Company the contract for five cisterns, a part of the auxiliary fire system; price to be paid for the work is \$421,425.

Jacksonville, Ill.—Bids were opened February 25 for purchase of water pipe for East Lafayette avenue, Franklin street, East College avenue and Caldwell street, and the Jacksonville Plumbing Company was found to be the lowest; bids were as follows: Jacksonville Plumbing Company, 6-inch water main, \$25.75 per ton; fittings, 2% cents per pound; pig lead, \$4.80 per hundredweight. Elmer E. Beasall, 6-inch pipe, \$25.98 per ton; fittings, 2½ cents per pound; pig lead, \$4.40 per hundredweight.

Barker Iron Company, 8,000 feet of 6-inch pipe, \$26.50 per ton; 7,000 pounds pig lead, 4½ cents; all special castings, \$52. Landers, Keefe & Co., 6,000 feet of 6-inch pipe, \$26.20 per ton; fittings, \$2.90 per hundred-weight; split tees, \$3.90 per hundred-weight; 7,000 pounds pig lead, \$4.50 per hundred-weight. Crane & Co., 8,000 feet 6-inch pipe, \$26.10 per ton; fittings, 3 cents per pound; 7,000 pounds pig lead, \$4.36. Bernard Gause, 6-inch pipe, \$26 per ton; special, 2½ cents; pig lead, \$4.55.

Rock Island, Ill.—Bids were opened March 1 for the filter plant from seven different concerns, and far exceeded what was expected, all of them reaching around \$100,000, and it may be necessary to re-advertise. Some firms put in several propositions. The bids follow:

F. T. Ley & Co., New York, \$106,200; Pittsburg Filter Manufacturing Company, \$90,880, \$94,901, \$97,800, \$94,400, \$99,650, \$103,000; Norwood Engineering Company, \$104,560, \$104,860, \$102,260, \$101,260, \$100,660, \$99,660; Roberts Filter Company, of Philadelphia, \$94,900, \$98,760, \$99,478; Thos. Lightbody, Youngstown, O., \$91,575; New York Continental Jewel Company, \$104,450; Sand and Gravel Company, East Liverpool, O., \$95,500. The Consulting Engineer to be appointed will make a thorough examination of all the plans submitted and his report to Council at the conclusion of this examination will control the action to be taken. The fact that the bids are so high is due partly to the amount specified for excavating. The companies placed their figure for this part of the work at \$14,000, when it can be done locally for a sum not to exceed \$6,000. Further reasons why the bids are so high is because the latest and most modern improvements are included in the plans and specifications. The Moline plant cost \$73,000, but it will not begin to compare with the one to be built here, as everything in the Rock Island plant will be in duplicate. The latest hydraulic and automatic designs will be included.

Several propositions were received from consulting engineers who desire to supervise the construction of the plant. The propositions follow: Alexander Potter, of New York, for examining the plans, \$25 a day and expenses; for building the plant, 3 per cent of the total cost, he to furnish a resident engineer. George T. Prince, of Denver, will examine the plans and supervise the construction for 3½ per cent of the contract price and traveling expenses; on a per diem basis, \$35 a day plus all expenses. Allen Hazen, of New York, \$400 and traveling expenses for the examinations. John W. Alvord, of Chicago, \$50 a day and expenses. These applications were referred to the Committee of the Whole.

South Bend, Ind.—The contract to furnish the city with gate valves was given, February 24, to the Rensselaer Manufacturing Company, of Chicago, by the Water Works Board, the bid being \$770; other bids were: Darling Pump and Manufacturing Company, \$852; Ludlow Manufacturing Company, \$867; Water Works Equipment Company, \$804; Ree Stephens Manufacturing Company, \$774; J. Thompson & Co., \$958.20; Western Valve Company, \$895.32; 375 water meters were ordered from the following firms: Pittsburg, 50; Hersey, 75; Worthington, 50; Lambert, 75; King, 74; Trident, 50; Ireland & Co. transfer line was given the contract for hauling pipe at 75 cents a ton and 50 cents an hour for work by the day.

Loch Raven, Md.—The Maryland School for Boys has awarded contract to Rothrock & Co., 23-25 Light street, Baltimore, at \$1,100, for extension of water works.

Lawrence, Mass.—The Water Board, March 5, awarded C. F. Lynch, the plumber, two contracts, one to furnish the Department with eleven reels of lead pipe and another to supply the Department with eight tons of pig lead.

The following were the bids received for lead pipe: John F. Quinn, seven reels three-quarter-inch, at 5½ cents per lb.; Carl G. Weiss, eleven reels, at 6 cents lb.; C. F. Lynch, \$5.40 per 100 lb.; B. F. Mitchell, \$5.44 per 100 lb.; H. F. Stanchfield, \$5.52 per 100 lb.; Seisig & Dimlick, \$6.75 per 100 lb.; A. Robinson & Co., \$5.61 per 100 lb.; Robinson Hardware Co., \$5.40 per 100 lb.; Merrimack Supply Co., \$5.67 per 100 lb.

The following were the bids received for a pig lead contract of eight tons: Seisig & Dimlick, \$5.25 per 100 lb.; Carl J. Weiss, \$4.75 per 100 lb.; Merrimack Supply Co., \$4.50 per 100 lb.; H. J. Stanchfield, \$4.32 per 100 lb.; C. H. Holt, \$4.32 per 100 lb.; T. F. Fallon & Co., \$4.28 per 100 lb.; J. F. Quinn, \$4.25 per 100 lb.; B. F. Mitchell, \$4.34 per 100 lb.; Robinson Hardware Co., \$4.20 per 100 lb.; C. F. Lynch, \$4.20 per 100 lb.—E. L. Arundel, Chairman of Board.

International Falls, Minn.—The Cook Construction Company, Des Moines, Ia., has secured the contract for constructing water works for \$14,382; other bids received were: A. D. Lovell, Minneapolis, \$14,715, and J.

Kennedy, Duluth, \$14,853.—F. B. Green, Village Recorder.

Jackson, Minn.—W. D. Lovell, of Minneapolis, has secured contract for water main for \$8,750; all bids opened Feb. 26 for tower and tank have been rejected and new bids will be received March 19.—L. P. Wolff, of St. Paul, Engineer; J. G. Robertson, Village Clerk.

Grand Island, Neb.—William Kelly, city, has secured contract for laying water mains for \$6,055.—H. E. Clifford, City Clerk.

Lincoln, Neb.—Bids were opened Feb. 24 for the construction of a reservoir of 1,000,000 gallons capacity, to be located at the Mockett pumping station, and the following are the bids received: A. F. Chase, Clinton, Ia.—City plans, concrete, \$15,140; without five-year guarantee, \$13,640. Hallanbeck & Thompson, University Place.—\$13,147. Gould Construction Company, Davenport, Ia.—\$15,166. Cook Construction Company, Des Moines, Ia.—\$13,133. Freeborn Engineering and Construction Company, Kansas City, Mo.—Own specifications, \$13,999; city specifications, \$15,980. National Construction Company, South Omaha—Own specifications, \$12,157; city specifications, \$13,109. Olsen & Lawrence, Lincoln—Reinforced concrete, \$13,752; brick, \$14,964. William Worthman, Lincoln—Concrete, \$12,890; brick, \$14,763. Able & Roberts, Lincoln—Concrete, \$12,392; brick, \$13,895.

Scotts Bluff, Neb.—The contract for constructing water works has been awarded to the Katz-Craig Construction Company, of Omaha, for \$27,660.

Midland Park, N. J.—The Bergen Water Company of New Jersey has awarded contract for laying 8 miles of water pipe to L. J. Richardson, Owego, N. Y.

Rochester, N. Y.—The Board of Contract and Supply, March 3, awarded the contract for furnishing water meters to the Thomson Meter Company, of Brooklyn, for \$5.98 each. The reduction in the price of meters in 1908 and this year which has been brought about largely through the efforts of Mayor H. H. Edgerton, saves the city about \$25,000. The contract calls for a minimum of 3,000 and a maximum of 6,000. The National Hersey and Neptune meter companies bid for the contract, the Hersey firm bidding \$6.35, and the other two \$8.40. The latter was the price charged by the companies before the Mayor took a hand in the award of the contract. Last year the Thomson Meter Company bid \$6.35 and secured the contract.

The Board awarded contracts for furnishing 100 stop gate stones for the Water Works Department to Joseph D'Argenton for \$1.80.

Syracuse, N. Y.—The United States Cast Iron Pipe and Foundry Company of New York City, March 1, submitted the lowest price for cast-iron pipe to the Board of Contract and Supply that has been offered the city in years. The bid was on a total of 304 tons to be used this year by the Bureau of Water for twelve, ten, eight and six-inch extensions within the city and the per ton price was \$22.70. When this company bid \$23.85 last year the Board thought it was receiving a low figure, and the latest bid has been quickly accepted, although it was the only one submitted.

In addition, the company bid 2 1-2 cents a pound upon 40,000 pounds of special iron castings.

Webster, N. Y.—C. T. Hookway, of Syracuse, has secured contract for constructing reservoir and piping, for \$23,157, and Connerly & Co., of Philadelphia, Pa., for the standpipe at \$1,975; totals of all bids received were presented in March 3 issue.

Spartanburg, S. C.—Fifteen bids were made March 1 upon the pumping outfit to be purchased by the city, and these were opened by Chairman A. C. Cannon of the Water Works Commission. Contract for the apparatus will be awarded just as soon as the engineers have had an opportunity to examine closely each machine offered by the various companies and decide which will, in the long run, prove cheapest for the city. The bids were as follows:

Upon the boiler: Casey-Hodges Company, \$1,575; Babcock & Wilcox Company, \$2,045; Alexander-Garsand Company, \$2,270; Erie City Iron Works, \$1,965.

Upon pumping engine and boiler: Dravot-Doyle Company, \$10,000; Nordburg Manufacturing Company, \$13,830; Gibbs Machine Company, \$14,378; Robert Wetherall Company, \$20,575.

Upon the pumping engine alone: Jean-serille Iron Works, \$7,500, \$8,300, \$6,500; Union Steam Pump Company, \$6,762; Nelson-Snyder Manufacturing Company, \$10,100; Laidlaw-Dunn-Gordon Company, \$6,750; Allis-Chalmers Company, \$11,967; Platt Iron Works, \$7,700, \$6,140; Fred M. Prescott Steam Pump Company, \$8,840.

Nashville, Tenn.—Howard, Metz & Co., city, were awarded contract for furnishing pipe for the sewer to be built in West Nashville, at \$18.97 per ton. The contract for special castings was awarded to J. H. Fall & Company, the price being \$55 a ton.

About 13 tons are included in the latter order. The former contract calls for 1,041 tons of 18-inch pipe, 580 tons of 16-inch pipe and 210 tons of 6-inch pipe. McFall bid \$23 per ton for the pipe, while the Dimmick Pipe Company bid \$24.75 for pipe and \$60 for specials; Wilson, Ingram & Company, \$19.25 for pipe, and Ames Coal & Iron Pipe Company, \$25.40 for pipe and \$60 for specials.

Cheyenne, Wyo.—Robt. La Fontaine, of the firm of R. W. Bradley & Company, contractors, of Cheyenne, has secured the contract for constructing the new Crystal Lake reservoir dam; it will be of concrete, 45 feet wide and 90 feet high, and cost about \$50,000.

Milwaukee, Wis.—It is stated that the contract for furnishing material and laying about 13,360 linear feet 36-inch cast-iron water mains (bids opened March 1) has been awarded to R. J. Hickey, of Milwaukee, at \$1.74 per foot.—Chas. J. Poetsch, City Engineer.

LIGHTING AND POWER

Brewton, Ala.—An election has been called by the Mayor and Council March 16 for the purpose of deciding whether or not the city will be allowed to increase the present tax rate one mill, if necessary, to pay the interest on bonds about to be sold; proceeds will be used in installing a new and larger dynamo and engine at the power house.

Chico, Cal.—The Sierra Electric Power Company has petitioned City Trustees for a franchise for the sale of electric power and for the erection of poles and wires for the transmission of the same.—F. C. Willson, Representative.

Colusa, Cal.—The Colusa Gas & Electric Company will expend \$10,000 in improvements to the gas plant.—H. P. Heryford, Manager.

Montague, Siskiyou Co., Cal.—The Siskiyou Electric Power and Light Company proposes to begin work soon on a new power plant on the Klamath River, which is to be completed in three years or less and made capable of developing 64,000 horsepower; plant will be located at Ward's Canyon; tunnel will begin above the canyon and pass through the mountain at the bend of the river.

Paso Robles, Cal.—Trustees have appointed a Committee to investigate the cost of erecting a municipal electric light plant.

Redlands, Cal.—The Domestic Water Company will erect a transformer station at the corner of Reservoir and Crescent avenues.

Sierra Madre, Cal.—City has voted \$30,000 bonds for a municipal gas plant.

Leadville, Col.—Alderman Evans, Chairman of the Light Committee, has recommended that new arc lights be placed at the following locations: Corner East Seventh and Hazel streets, East Eighth and Hemlock streets, West Sixth and St. James streets, Elm and St. James streets, on Toledo avenue near Bon Air mine, and Chestnut and Maple streets; placing of the lights has been ordered.

Washington, D. C.—An American consul in Canada reports that a local telephone company is about to extend its service a distance of 170 miles to connect with a neighboring city, in which it proposes to install a complete underground conduit system for the working of its service. The management of the company is desirous of closing contracts for the work as soon as possible, in order to commence work by May 1, and is in position to furnish specifications at once to responsible contractors. The work will include the laying of a cable under a river, the construction of a system of underground conduits in every street of the city, the equipment of a modern central exchange and the installation of an automatic service throughout the city. The contract will involve an expenditure of approximately \$500,000.—Address No. 3135, Bureau of Manufactures.

Carrollton, Ga.—Citizens will vote March 30 on bond issue for either buying and enlarging present plant or building new system.

Washington, Ga.—C. S. Lucas is considering construction of water power electric plant about 10 miles from Washington; communication with engineers and manufacturers of necessary machinery is desired.

Bloomington, Ill.—The Illinois Traction system will expend \$150,000 in improvements to gas plants at Urbana, Champaign, Decatur and Danville; contract for machinery has been closed.—H. E. Chubbuck, La Salle, General Manager.

Bloomington, Ill.—The Illinois Traction System will erect an addition to the main power house at Riverton; a 3,000-kilowatt turbine will be installed and other new machinery will be added; cost, \$100,000.

Lincoln, Ill.—Council has received petitions for electric lights at the intersection of Third and Union, Third and Walnut, Third and Elm and Third and State streets.

St. Louis, Ill.—An ordinance has been passed authorizing the placing of electric lights on Main street near Trendley avenue, Seventeenth street and Gaty avenue, Fourteenth street and Walnut avenue, Twenty-ninth street and Belt railway, Southern Belt railroad and Missouri avenue; Sixth street between St. Louis and Missouri avenues, Fourteenth street and Illinois avenue, Twenty-fifth street and Henrietta avenue, Southern Belt and Caseyville road, Ninth street and Winstanley avenue, Eighteenth street and Market avenue.

Winnetka, Ill.—Citizens have voted to expend \$40,000 in improving the municipal electric light plant.

Thorntown, Ind.—City is having plans made for the construction and equipment of a combined water, electric light and heating system in this city; a gift of \$50,000 has been made to the town for the purpose of installing a water plant and the city will appropriate sufficient to insure the combined system.

Warsaw, Ind.—Wm. Thorn will petition Council for a franchise for the construction of a power plant to develop the Tippecanoe River and furnish the electricity in the vicinity of Monroeville.

Dubuque, Ia.—The Farley & Loetscher Manufacturing Company has completed plans for the erection of a power house on the corner of White and Eighth streets; cost, \$25,000; work will be commenced about March 15 and will be completed about August 1.

Guthrie Center, Ia.—City has granted the Iowa Constructing Company of Eldora an electric light, telephone and street railway franchise.

Louisville, Ky.—The Commercial Club is urging the addition of thirty-light standards on Fourth avenue in each block from Main street to Broadway.—Fred. W. Keisker, President.

Mansfield, La.—Mansfield Ice Plant and Light Company is considering the purchase of municipal light plant; price, \$6,150.

Gilbert, Minn.—The Virginia Light & Water Company, Virginia, has asked city for an electric light franchise.

Kansas City, Mo.—W. E. Davis, 2316 Prospect avenue, desires communication Prospect avenue, desires communications with manufacturers of electrical supplies.

Bergen, N. J.—Plans have been completed for the construction of the municipal electric light plant.

Newark, N. J.—Flaming arc lamps similar to those being used in Broad street, south of Market street, are to illuminate that thoroughfare north of Market street as far as Central avenue; this has been decided by the Broad Street Improvement Association; as to the kind of poles from which the lamps will be suspended nothing definite was decided; they will be placed 100 feet apart; lamps will be at least 25 feet above the ground, and with their 9,000 candle-power will cost \$300 a year per lamp.—Jas. M. Byrne, Chairman Executive Committee.

Orange, N. J.—Council has decided to hold a special election on Tuesday, May 4, to afford voters an opportunity to express themselves on the question of the adoption of the Jones law, empowering municipalities to build their own lighting plants.

Paterson, N. J.—Oliver W. Merritt, representing S. Scheur & Co. and a number of other Main street merchants, is urging the Board of Public Works to establish a "Great White Way" on Main street between Broadway and Market streets.

Vineland, N. J.—The Citizens' Gas Company has been incorporated to operate gas works in Landis Township, Cumberland County; capital, \$30,000.—Henry B. Kimble, N. C. Livermore and S. L. Franklin, incorporators.

Clifton Springs, N. Y.—At coming charter election, held March 16, a proposition will be submitted to the taxpayers for the purpose of bonding the village for \$8,000 to be used in the enlargement of the present municipal electric lighting plant.

Lestershire, N. Y.—Citizens will soon vote on \$10,000 bonds for an electric light plant.

New York, N. Y.—The Municipal Art Commission has approved the designs for the proposed lighting fixtures for the new police headquarters in Center street; cost, \$20,000.

Rochester, N. Y.—The Rochester Railway and Light Company will erect a one-story \$15,000 electric sub-station.

Schenectady, N. Y.—The local railway company will build a substation at the north end of Ballston Lake on its Saratoga division; station will be equipped with two 600-kilowatt rotary converters and two 300-kilowatt rotary converters; building will be erected at an estimated cost of \$17,500.—E. F. Peck, General Manager.

Monroe, N. C.—The Southern Power Company, Charlotte, has purchased site on which to erect transformer station; electricity will be transmitted from water power electrical development on Catawba River.

Spencer, N. C.—The Board of Trade is considering erection of electric light and power plant.

Belle Fourche, N. D.—An expert engineer will look over the Belle Fourche Power and Water Company's plant with a view to making improvements.—A. H. Marble, Cheyenne, Wyo., President.

Fargo, N. D.—The Special Water Works Committee will recommend an election on \$100,000 bonds for an electric lighting plant and a mechanical filter.—Peter Elliott, Mayor.

Mandan, N. D.—The Mandan Electric Company is preparing plans for the enlargement of its plant, including installation of two boilers.

Redmond, Ore.—Bids for constructing a power plant will be called for in the fall by a company promoted by H. F. Jones; cost, \$30,000.—J. G. McGuffie, of Redmond, Engineer.

Altoona, Pa.—Council is considering establishment of arc lights at Twenty-second avenue and Fifteenth street, Seventeenth avenue and Fifteenth street, and Crawford avenue and Seventh street.

Chester, Pa.—The Bacon Light Company will expend \$125,000 in improvements.—A. R. Granger, Manager.

Harrisburg, Pa.—The Finance Committee has appropriated \$28,092 for the Street Lighting Department, as follows: 565 electric arc lights, at \$47, \$26,132; lighting fountain at Mulberry and Derry streets, 25-candle power incandescents, \$44; twelve 100-candle power incandescents lights, \$456; 17 50-candle power incandescent, \$442; also cost of lighting the Market and Herr street subways and repairs to same, \$550; removal of electric lights, \$25, and additional lights in city offices.

Bloomington, Pa.—The Columbia Power, Light & Railways Company will soon let contracts for the building of a 25-mile, 23,000-volt, three-phase transmission line, with about 2,000 kilowatt of power transformers, lightning arresters, etc.; company will also install a 500-horsepower hydraulic turbine, a 300-kilowatt railway generator and a 200-kilowatt belted railway generator, with switchboard.—E. O. Ellis, General Manager.

Greenville, Tenn.—Citizens will vote March 20 on \$40,000 bonds for purchasing or erecting electric light and water works plants.

Nashville, Tenn.—Council has passed an ordinance appropriating \$6,000 for purchasing arc-lamp equipment.

Park City, Tenn.—Council has appointed a Committee, consisting of Councilmen Fox, Underwood and Davis, to come to some agreement with the Knoxville Gas Company for the extension of gas mains to Park City, before the streets are improved and thus prevent the tearing up of the streets at a later time.

Rockford, Tenn.—Benj. Cunningham and Jas. L. Clark have purchased plant of the Rockford Electric Company; power plant will be reconstructed.

Beaumont, Tex.—A petition is now being circulated among the citizens who live on Grand avenue, asking that Council place street lights along that thoroughfare.

El Paso, Tex.—The Mesilla Valley & El Paso Interurban Railway will purchase a complete power station equipment.—H. A. Baum, 33 Michigan avenue, Chicago, Ill.

Fort Worth, Tex.—Improvement in the municipal electric light plant involving the expenditure of \$62,605.45 will be provided for in an ordinance which the City Commission will adopt, subject to the approval of the voters of Fort Worth; the ordinance is in keeping with the Commission's policy of a light on every street corner and will make mandatory upon the Commission the installation of not less than 400 arc lights.

Fort Worth, Tex.—J. C. Madden, Sr., will purchase electric generators, arc lights and fans.

Taylor, Tex.—Council will give a hearing to W. B. Johnson, a mechanical and constructing engineer of Palestine, and his associates, who have made application to the Council for a franchise to build, equip and operate a new electric light and gas plant.

Salt Lake City, Utah.—The Utah Light and Railway Company will make improvements in public service; costing 75-ton, 3,000-h.p. motor-generator, costing \$35,000, and the duplicate of the one just installed, will be ordered and located immediately west of the one now in operation in the West Temple street power station; an emergency plant will be located at the Jordan River, with a steam power equal to one-half of the total demands made on the present plant; cost, probably \$500,000.—Joseph S. Wells, Salt Lake City, General Manager.

Basic City, Va.—City will issue \$25,000 bonds for an electric light plant and other improvements.

Emporia, Va.—The Emporia Hydro-Electric Power Company has been incorporated to construct a power plant; capital, \$200,000.—W. Samuel Goodwyn, G. E. Wood and W. F. Deal, Incorporators.

Fredericksburg, Va.—The Fredericksburg Electric Company will receive bids at once for an electric light plant.—R. M. Van Dorn, Engineer, Exchange Hotel.

Lexington, Va.—The Rockbridge Power Corporation has been granted a charter to construct a heating, lighting and power plant; capital, \$25,000.—W. G. Mathews, President; W. T. Paxton, Buena Vista, Secretary and Treasurer.

Richmond, Va.—The Commission on Electricity has accepted the plans of E. W. Trafford, Chamber of Commerce Bldg., for the proposed new lighting and power plant; plans have been approved by Pressy & Weller, Consulting Engineers, Washington, D. C.

Rutland, Vt.—The Rutland Railway, Light & Power Company will construct 2 miles of gas mains; also extend its electric railway from Castleton to Poultney.—G. S. Haley, Manager.

Camas, Wash.—Plans are not yet finished for the electric light plant to be constructed; franchise has been secured.—C. W. Cottrell, Washougal.

Seattle, Wash.—Bids for \$500,000 worth of lighting extension bonds and \$500,000 worth of park extension bonds will be opened at the office of the City Comptroller, March 13, noon.

Washtucna, Wash.—Codd & McKenzie, of Colfax, Wash., will build a power plant at the great falls of the river seven miles southeast of Washtucna.

Martinsburg, W. Va.—The Interstate Natural Gas Company has asked Council for a franchise to construct and maintain pipe lines to deliver gas for lighting and heating.

Romney, W. Va.—The Interstate Natural Gas Company, Charleston, has applied for franchise to supply city with natural gas for heating, light and power.

Lomira, Wis.—Sterr Bros., Knowles, are considering erection of an electric light plant.

Sturgeon Bay, Wis.—City will expend about \$30,000 on improvements to the municipal electric light plant.

Winnipeg, Man., Can.—Council will call for bids for a transformer for testing insulators; estimated cost, \$10,000.—F. E. Cambridge, City Electrician.

BIDS RECEIVED AND CONTRACTS AWARDED

Stuttgart, Ark.—Tindall & Prange have awarded contract for 275-horsepower Corliss engine and boilers, etc., to Southern Engine & Boiler Works, Jackson, Tenn., through H. H. Brooks, sales manager, Little Rock, Ark.; machinery to be installed in pumping plant on White River.

Oakland, Cal.—Contracts have been awarded by the Great Western Power Company to the Globe Construction Company of San Francisco for the erection of a power house on East Oakland heights and a substation near Sessions basin on the estuary. The power house is to be completed by July, and the substation within six months from date. Both buildings are to be of reinforced concrete and total an expenditure of approximately \$100,000. In addition the Great Western Company has awarded contracts for the construction of power lines and machinery, bringing the total expenditure for work to be immediately performed in this county up to \$300,000. The Great Western Company is to furnish power to the Southern Pacific for the electrifying of its suburban train system.

Sacramento, Cal.—A contract has been awarded to the Thompson Bridge Company for repairing the power cable on the Third street bridge; company agreed to do the work for \$1,500.

Bloomington, Ill.—The Illinois Traction System has closed a contract with W. E. Steiawedell, of Cleveland, for machinery for gas plants at Champaign, Urbana, Decatur and Danville; \$150,000 will be expended in improvements.

Rock Island, Ill.—The bids of the Peoples Power Company for lighting the city, \$60 for street lights and \$33 for alley lights, was accepted.

Houma, La.—The Board of Aldermen of Houma has awarded the contract for erecting a building for the municipal electric light plant to William Watkins, he being the lowest bidder.

Duluth, Minn.—The Board of Water and Light Commissioners has let the contract for furnishing a double acting triplex pump for the new station of the middle system at Fifteenth avenue East and Sixth street, to the General Electric Company; contract

provides for the furnishing of a Dean double acting triplex pump manufactured by Henry Worthington & Co., with all necessary appliances, equipment and installation, for \$6,400; four bids were considered in all, two on double acting triplex pumps and two on centrifugal pumps; one bid on each kind of pump was received from the General Electric Company and from the Power Equipment Company; bid of the Power Equipment Company on the double acting triplex pump was \$7,339.

St. Louis, Mo.—The contract for lighting the downtown streets for a term of ten years, beginning September 1, 1910, has been awarded by the Board of Public Service to the Union Electric Light and Power Company; under the new contract the cost of arc lamps will be reduced from \$98 to \$55 per lamp per year, which will mean a saving to the city of more than \$516,000 in 10 years; the Board has also approved the plan of the Downtown Lighting Association to install 470 artistic electrolights in the business district, now lighted by 136 arc lamps.—Arthur Williams, General Manager of the company.

Wappingers Falls, N. Y.—The contract for the construction of the extension to the municipal electric light plant has been awarded to Stehlin-Miller Company, 103 Park avenue, New York, for \$9,150.

Perrysburg, O.—The Village Council has let a 10-year street lighting contract to A. C. Tryon, of Maumee, on his bid of \$50 a light per year; William Witzler, who has the present contract at \$80 a light, put in a bid of \$75.

Eugene, Ore.—Contract for the construction of the proposed Waterville power canal has been awarded by Council to Samuel Manerud, of Eugene; he is to receive a total of about \$51,855 for construction of the canal, his bid having been the lowest of a total of five submitted; following are the bids and the contractors who submitted same: Coughlan & Woldson, Vancouver, Wash., (a) excavating earth, per cubic yard, 40 cents; (b) excavating cement gravel, cubic yard, 55 cents; (c) excavating solid rock, cubic yard, 90 cents; agree to complete the work on or before October 1. J. P. Porter, Vancouver, Wash., (a) 45 cents, (b) 55 cents, (c) 70 cents; October 1. J. R. Mitchell, Portland, Ore., (a) 50 cents, (b) 65 cents, (c) 95 cents; September 1. Samuel Manerud, Eugene, (a) 31½ cents, (b) 75 cents, (c) \$1.50; October 1. E. T. Johnson & Co., Portland, Ore., (a) 43 cents, (b) 55 cents, (c) \$2; five months.

York, Pa.—The Merchants' Electric Light Company was awarded the contract, February 26, to furnish street lights for North York during the fiscal year beginning March 16 next, by Borough Council; bids were submitted by the Edison and Merchant companies.

Weatherford, Tex.—The Weatherford Gas, Light, Heat & Power Company, March 1, let contract to a Biloxi, Miss., firm for the installation of a United States Improvement Company's four-foot water gas set, which will give the plant a daily capacity of 125,000 cubic feet of gas, instead of the 15,000 cubic feet now being furnished. John H. Prince, manager of the gas plant, states that provision has been made by the stockholders for an expenditure of \$35,000 in improvements during this year.

Merrill, Wis.—Contract has been let to the Western Electric Company, 259 South Clinton street, Chictgo, Ill., for installation of additional machinery at the Grandfather Falls plant; the equipment will include a 1,100-kw. generator, switchboard and one 140-h.p. exciter set in the power house, and a 1,100-kw. transformer at the mill; the cost of the improvements is estimated at \$25,000.

Grand Falls, New Brunswick.—The contract for the construction work involved in the hydro electric development of the Grand Falls Power Company on the St. John River, at Grand Falls, New Brunswick, has been placed in the hands of Frank B. Gilbreth organization of New York.—John B. McRae, Ottawa, Chief Engineer; Ralph Mershon, of New York, Electrical Engineer.

Toronto, Ont., Can.—The Hydro-Electric Power Commission has awarded to the Canadian General Electric Company, and to the Canadian Westinghouse Company of Hamilton contracts for the equipment of the different distributing and transformer stations in connection with the Provincial Niagara Power scheme; total cost about \$750,000.

FIRE EQUIPMENT

Pacific Grove, Cal.—Fire Chief W. C. Gretter is urging the purchase of more adequate apparatus and a better organized department.

Pasadena, Cal.—The City Commissioners decided to request the Council to advertise

for bids for constructing the new Hurlburt street auto-chemical engine house.

South Norwalk, Conn.—City will purchase a new truck for the hook and ladder company.

Jacksonville, Fla.—Citizens are considering better fire protection; Council is considering the erection and purchase of a pumping plant and the installation of a high-pressure system; Mayor Sebring is in favor of the purchase of two additional steamers of powerful capacity and a sufficient supply of most serviceable nozzles, deluge connections and hose; the purchase of a fire boat is also considered.—Fire Chief T. W. Haney.

Augusta, Ga.—City and the village of Summerville will probably be joint owners of a combination auto chemical engine and hose wagon; definite arrangements have not yet been made for securing it.—Chairman Kalbfleisch, of the Fire Committee.

Indianapolis, Ind.—Council has appropriated \$22,700 for the purchase of two more sites for fire engine houses.

Mishawaka, Ind.—Mayor Charles Frank has recommended the establishment of a properly equipped fire station on the North Side.

Richmond, Ind.—Chief Miller has recommended purchase of a steamer; a 75-foot ladder truck, a Glazier nozzle, life-saving net and 1,000 feet of hose.

Vincennes, Ind.—The Board of Works and the City Council are discussing plans for the two new fire houses which are soon to be erected in this city.

Ft. Dodge, Ia.—Town has appropriated \$5,000 for fire apparatus.—Mayor Duncombe.

Sioux City, Ia.—E. R. Townsend, Engineering Expert, has recommended the betterment of the fire alarm system and the installation of a first-class steamer on the North Side.

St. Bernard, La.—Citizens have organized a fire company.—Jacob Reichert.

Winslow, Me.—Town is considering installation of a 6-box circuit and a compressed air whistle.—Fire Chief Allen.

Baltimore, Md.—The Board of Awards will receive bids, March 10, for furnishing Fire Commissioners with 20,000 feet knitted double-jacket cotton, rubber-lined fire hose, 2½ inches internal diameter, fitted with Baltimore standard couplings, Higbee thread, each 50-foot section to weigh, with couplings, not less than 60 pounds.—P. W. Wilkinson, Secretary of Fire Department.

Attleboro, Mass.—Town has appropriated \$10,000 for the purchase of a combination hook and ladder truck, establishment of a new central fire company, purchase of hose, extension of fire alarm and other improvements.

Marion, Mass.—The Fire Engineers have recommended installation of a fire alarm system.

New Bedford, Mass.—City is considering installation of a motor fire engine at Lund's Corner; Webb Company has made proposition.—Chief Dabell.

Pittsfield, Mass.—The Fire Committee has voted to buy a new fire steamer at a cost of \$5,450; steamer will have a capacity of 800 gallons a minute or 100 gallons more than the best steamer now owned by the Department; also to purchase new ladders for the trucks to replace the old ones now in use, and to buy a new team of horses to replace the old team at the Morningside house.

Taunton, Mass.—The Committee on Fire Department has voted to withdraw its recommendation in favor of an appropriation of \$4,800 for repairs on the steamer at the Bay street station, and to substitute therefor an order calling for an appropriation of \$2,500 for repairs; preliminary steps have been taken toward the receiving of bids for the purchase of 2,000 feet of hose.

Kalamazoo, Mich.—A fine engine house for the southwestern portion of the city is being considered; City Attorney Fitzgerald has been instructed to prepare the necessary resolutions ordering a proposed bond issue of \$15,000 for site, building and equipment to be submitted to a vote of the people.

St. Louis, Mo.—The Board of Public Improvements is having plans prepared for three engine houses; total cost, \$60,000.—C. M. Talbert, Engineer.

Omaha, Neb.—Council has ordered plans drawn for a \$30,000 engine house at Twenty-second and Ames avenues.

Concord, N. H.—City is considering purchase of 500 feet of hose.—Fire Chief Green.

Glendora, N. J.—A fire company has been formed and apparatus will be purchased.—Jacob Price, President.

Hackensack, N. J.—Citizens have formed a fire company in the Heights.—H. B. Ferber, Secretary.

Ocean City, N. J.—Mayor Cresce, of Ocean City, has refused to sign the \$5,000 bonds for the purchase of the automobile chemical fire engine on the ground that the law was not complied with; matter has been referred to the City Solicitor.

Paterson, N. J.—Work will begin on the proposed headquarters of the Lakeview Fire Department as soon as the weather permits.—Geo. Bromley, Fire Chief.

Paulsboro, N. J.—Town is considering the formation of another fire company.

Plainfield, N. J.—Bids have been advertised for a combination chemical engine and hose wagon.—Chairman Taylor of the Committee on Fire and Buildings.

Pleasantville, N. J.—Citizens are considering an appropriation to purchase an up-to-date engine.—Dr. R. M. Sooy, Mayor.

West Hoboken, N. J.—City is considering the purchase of an aerial truck, combination chemical engine and hose apparatus for Neptune Engine Company.

Brooklyn, N. Y.—Architect Axel S. Hedman is preparing plans for a three-story \$68,000 engine house.

Far Rockaway, L. I., N. Y.—Citizens are urging purchase of additional fire apparatus.

Freeport, L. I., N. Y.—Citizens are urging that property be purchased for hose house; also the formation of more fire companies.—A. B. Wallace, Fire Chief.

Newburgh, N. Y.—Mayor McClung is again urging the City Councilmen to take some action to secure a new fire alarm system for the city.

Oneida, N. Y.—Council is considering the calling of a special election on appropriating \$35,000 for the erection of two new fire houses and \$75,000 for a new water main.

Schenectady, N. Y.—The National Board of Underwriters has recommended the installation of new fire alarm boxes; additional equipment and chemical service for Mount Pleasant and the procuring of two additional engines.

Syracuse, N. Y.—Common Council has ordered an \$80,000 bond issue for the purchase and installation of proposed fire alarm system.

Canton, O.—All bids recently received for 17 enclosed fire escapes have been rejected.—W. C. Lane, Clerk Board of Education.

Brackenridge, Pa.—Citizens are raising funds for a hook and ladder truck for the Pioneer Hose Company.

Butler, Pa.—The First Ward Hose Company has appointed a committee of five members for the purpose of circulating a petition among the property owners in the town asking that Council add an automobile hose wagon to the paid fire department, the same to be located in a central place in the town and to be operated by the volunteers; members are Captain W. H. Ensminger, Robert Graham, George N. Burckhalter, J. A. Walter and W. J. Heineman.

Harrisburg, Pa.—The Finance Committee has appropriated \$2,000 for 2,000 feet of 2½-inch hose.

Scranton, Pa.—Fire Chief H. F. Ferber will ask Council for \$2,500 appropriation for an automobile to serve as the nucleus of an automobile brigade.

Scranton, Pa.—Architect F. J. Miller has furnished plans for the proposed new fire house and bids will be received in a few weeks.

Steelton, Pa.—The Town Property Committee is considering the purchase of a combination wagon for the Fire Department; cost, \$1,600.

Sturgeon, Pa.—Citizens will organize and equip a fire department.

Warren, Pa.—G. L. Folkman, Chairman of the Fire Committee, has recommended the purchase of 600 feet of hose, the building of a warehouse for storage of feed and supplies, the purchase of skeleton ladders for hook and ladder truck, the erection of a fire station and the purchase of a 30-gallon chemical can for the Centennial Hose wagon.

Wilkes-Barre, Pa.—Council has again under consideration the erection of a fire house at East End; Architect Podmore is preparing plans.

Wilkes-Barre, Pa.—Council is considering ordinances authorizing the Joint Fire Committee to advertise bids for fire apparatus; also for the employment of an architect to make plans and specifications for a fire engine house on Scott street.

Pawtucket, R. I.—The Business Men's Association has recommended the abandonment of the Fairmount fire station and the erection of a more modern station at Garden and Sterry streets.

Pawtucket, R. I.—The Business Men's Association is urging the purchase of two modern steam engines and the construction of a fire house in Woodlawn.

Draper, S. D.—The young men of this place have perfected the organization of a volunteer fire department.—J. O'Reilly, Chief.

Wessington, S. D.—A Volunteer Fire Department has been formed; funds are being raised to buy apparatus.—Eric Granberg, Chief.

Nashville, Tenn.—Council has passed ordinances appropriating \$2,500 for purchase of fire hose.

Park City, Tenn.—Council is considering automobile equipment for the fire department.—Councilman T. L. Dooley, Chairman Police and Fire Committee.

Dallas, Tex.—Plans for new fire station in Oak Lawn are ready and bids will soon be called for; plans have been made and specifications stipulated by Hubbell & Green, architects; cost, \$15,000 to \$17,000.

El Paso, Tex.—Plans have been adopted and estimates are being secured for a number of proposed changes in the Central fire station; total cost of the improvements is estimated at about \$1,200.

Danville, Va.—The Board of Aldermen has adopted on motion of Mr. Nunn the recommendation of the Fire Committee to appropriate \$5,000 for the purchase of a new fire engine.

Norfolk, Va.—The Board of Control will recommend the erection of a fire station in the eastern section of the Sixth Ward.—Fire Chief McLaughlin.

Racine, Wis.—City will receive bids for repairing fire steamer No. 2.—H. P. Connolly, City Engineer.

Brantford, Ont., Can.—City is considering purchase of a two-horse sleigh, 18 pairs rubber boots, 18 badges, 1,000 feet of hose, set of Archibald wheels, pair Hale adjustable collars, a new lifeboat, new steamer, capacity 1,000 gallons per minute, and a number of four-way hydrants in central section.—Fire Chief Lewis.

BIDS RECEIVED AND CONTRACTS AWARDED

Pittsfield, Mass.—Council Committee on Fire Department has voted to let the contract for furnishing 2,000 feet of fire hose to the Hardware and Mill Supply Company, of this city, at 60 cents a foot.

St. Louis, Mo.—The Board of Public Improvements has awarded contract at \$14,988 to Gillick Bros., St. Louis, for construction of Engine House No. 37.

Paterson, N. J.—The Lakeview Fire Department received proposals March 5 at their headquarters, on South Second street, for new hose. The bids were as follows: Fabric Hose Company, forty-five and fifty cents a foot; C. C. C., fifty-five and sixty cents a foot; Eureka Hose Company, thirty-eight and forty-five cents a foot, and Manhattan Hose Company, of Passaic, thirty-five cents a foot. Accompanying each bid was a three years' guarantee. The president appointed a committee comprised of J. W. Hanstein, chairman; F. A. Ballman and Chief George Bromley to go over the various propositions carefully and then purchase the six hundred feet of hose.

Canton, O.—Contract was let February 23 to Akron Iron and Wire Company, of Akron, for seven open fire escapes, for \$1,260; bids were received February 18; price, \$1,260; all bids received on February 6 for 17 enclosed fire escapes were rejected.—W. C. Lane, Clerk Board of Education.

Park City, Tenn.—Bids for the erection of the proposed fire hall for Park City were opened March 1 by the Fire and Police Committees of Council. Henry Ault submitted the lowest bid, \$3,965, and was awarded the contract. Following is a list of 13 bids submitted: Brimer & England, \$5,731; Stair Bros., \$4,222.22; Reicon Co., \$4,411.57; Henry Ault, \$3,965; Boyd Hall, \$3,980; L. A. Galyon, \$4,467.06; A. J. Cloyd, \$4,627; S. M. Beaumont, \$4,700; B. A. Gass, \$4,959; Smith & Gardner, \$5,709; Frank Claiborne, \$4,785.61; J. W. Whiseman, \$4,957.64; Homer Crumler, \$4,962.

ELECTRIC RAILWAYS

Eureka Springs, Ark.—The Citizens' Electric Company will soon let contracts for the reconstruction of the entire track in Eureka Springs; company is also considering an extension of from three to six miles.—A. M. Barron, General Manager.

Burbank, Cal.—L. C. Band is preparing an electric line from the terminus of the North Glendale line; right of way has been secured.

Chicago, Ill.—The Illinois Inland Electric Railway has been incorporated to construct an electric railway from Springfield in a southeasterly direction through Sangamon and Christian counties to Pana; capital stock, \$50,000.—George W. Davidson, Carl O. Beroth, Thomas C. Kennedy, Albert E. Wolf and William J. Eaker, all of Chicago, Incorporators.

Danville, Ill.—William Bridgett, a broker of this city, and George T. Buckingham, a Chicago attorney, will finance a line to run between Ridge farm and Paris; operations on the construction of the road will have begun at once; surveying parties have been sent out from this city to start surveying along the right-of-way of the new line; road will cost approximately \$20,000 a mile, and the total will aggregate an outlay of half a million dollars.

Geneva, Ill.—Council has granted a franchise to the Chicago, Wheaton & Western

Electric Railway Company to build an electric railway which will reach the region north of Wheaton and will connect the Aurora, Elgin & Chicago Railroad with West Chicago.—I. W. Truxel, Chief Engineer, Chicago.

Amo, Ind.—The Indianapolis & Western Railway Company will extend its line to Sullivan via Amo; distance, 75 miles.

Bluffton, Ind.—The Bluffton, Berne & Celina Traction Company will soon extend its line from Bluffton to Celina.—Rudolph Schug, President.

Centerville, Ia.—The Centerville Light & Traction Company has submitted a proposition to the Citizens' Committee of Centerville for the construction of an electric railway from Centerville to Mystic.—Frank S. Payne, President.

Lawrence, Kan.—The Lawrence electric light plant has been purchased by Cyrus Mead, W. R. Sullivan and Victor Emmanuel, of Dayton, O.; plant was purchased from J. D. Bowersock and R. C. Johnson; outcome of the purchase of the plant by these men is of considerable importance, as it is practically assured that they will be given the first street car franchise.

Pittsburg, Kan.—The Pittsburg & Kansas City Railway has been incorporated for the purpose of building an electric railway from Burgess, Mo., to Pittsburg; distance, 50 miles; capital stock, \$500,000.—John W. Ground, William M. Calhoun, Thomas K. Irwin and Fred H. Fitch, Incorporators.

Portland, Me.—The Scarborough & Cape Elizabeth Railway has petitioned the Legislature for incorporation; electric railway will be built from South Portland Heights, through South Portland, Cape Elizabeth, Scarborough and Westbrook; capital stock, \$400,000.—Samuel D. Plummer, Portland; William F. Spear, South Portland; Harry S. Jordan, Cape Elizabeth; John A. Snow, Scarborough; Otis S. Trafton, Westbrook, and Walter J. Gilpatrick, Saco, Incorporators.

Stoneham, Mass.—Selectmen have granted the Boston & Northern Street Railway, Boston, Mass., a franchise allowing it to complete the railway through the Middlesex Fells and around Spot Pond.

St. Cloud, Minn.—The Granite City Railway will construct 3½ miles of track during the coming season.

Clinton, Mo.—The Western Missouri Interurban Railway Company has made application to Council for a franchise to build an electric railway through Clinton; distance, 75 miles.—George S. Halliday, President.

St. Louis, Mo.—The St. Louis Electric Bridge Company has been incorporated for the purpose of extending the Illinois Traction System's railway into Missouri from Venice, Ill., to St. Louis; capital stock, \$5,000.

Bozeman, Mont.—A company has been formed to construct an electric railroad to Salesville; work will begin soon.—H. S. Buell, President; C. B. Anderson, Secretary.

Goldfield, Nev.—The County Board of Commission has granted a franchise to the Goldfield Traction Company for an electric transportation system in Goldfield.

Bayonne, N. J.—Mayor Pierre Garven has called upon President Thomas N. McCarter of the Public Service Corporation, relative to securing a belt trolley line for Bayonne; company will provide such a line if it can secure a franchise longer than 20 years, the limit now allowed by law; Legislature will be asked to extend the franchise limit to about 30 years.

Fulton, N. Y.—The Niagara Power Transmission Company is contemplating the making of an application to the local authorities for a franchise to operate within the limits of the City of Fulton, to supply power for manufacturing and enter into the lighting business.

New York, N. Y.—The Public Service Commission of the First District, New York, has approved a franchise granted to the Bronx Traction Company for the construction of 1,200 feet of double track from Classon Point road to Bronx River.—F. W. Whitridge, Receiver.

Port Jervis, N. Y.—The Port Jervis & Delaware Valley Railroad Company has petitioned Council for the right to construct and operate a street surface railway.

Van Hornesville, N. Y.—D. S. Tillyou is promoting the construction of an electric railway from Van Hornesville to Henderson.

High Point, N. C.—The North Carolina Public Service Company has secured from the Board of Aldermen of High Point a renewal of all franchises for electric railway facilities in that city; ordinance requires extensions of three miles within a year.

Painesville, O.—The Painesville & Youngstown Railway Company has organized to build an electric railway through Leroy, Windsor and Warren.—O. A. Bartlett, Leroy, President; F. H. Murray, Painesville, Trustee.

El Reno, Okla.—Beginning with April 1, various extensions of the local street car system will be made; line will be extended from Hayes to Foreman street, and from there to Ft. Reno; Street Car Company will also be asked to extend the line from Hayes to Rogers street, pass the Court House on the north, and thence west under the Rock Island tracks.

Lawton, Okla.—James M. Sims, of the Federal Trust Company, St. Louis, Mo.; W. D. Todd, Warren, Pa., and C. L. Carson, St. Louis, Mo., are promoting the construction of an electric railway; distance, 15 miles.

Allentown, Pa.—The Inter-County Electric Company will let contracts in about 30 days for building the proposed electric railway; length, 20 miles.—H. H. Bochow, President.

Chester, Pa.—The Delaware County & Philadelphia Electric Railway Company, which recently bid so liberally that it obtained the franchise through Lansdowne, has purchased the Terminal Railway Company franchise between Fernwood and Sixty-ninth streets; new acquisition will give the Delaware County Company a direct line from Lansdowne to the Sixty-ninth Street Terminal, after the line is built from Fernwood to Sixty-ninth street.

Coatesville, Pa.—After completing the roadbed between Parkersburg and Christiansburg, the Conestoga Traction Company will extend its lines north to Kurtz's Dam, which will be fitted up as a public park.

Girardville, Pa.—The Schuylkill Railway Company is making surveys for the extension of its lines from Maizeville to St. Clair by way of Frackville and a short line from Maizeville to Shenandoah; distance, 9 miles; J. H. Eby, of Lancaster, Pa., Engineer in Charge of Location; company will reconstruct its present lines and build a new power house and will purchase cars and power house equipment.—G. H. Gerber, President, Reading, Pa.

Hazleton, Pa.—The Susquehanna & Southern Railroad has been formed for the purpose of building a third-rail railway from Hazleton to Pottsville; surveys have been completed; work of building the railway will begin in the spring; railway will pass through Audenried, McAdoo, Lofty, Delano, Mahanoy City, Morea, Buck Mountain, Frackville and St. Clair; length, 32 miles.

Lansdowne, Pa.—Council has granted the Philadelphia & Delaware County Railway Company, which is backed by the Interstates Street Railway Company, right-of-way on Scottdale avenue; work to begin at once.

Lincoln, Pa.—Residents are urging the construction of an electric line to connect Ephrata and Lebanon, passing through this city and Brickerville.

Philadelphia, Pa.—A through trolley line is planned from this city to Easton, a distance of 57 miles; it is to be part of a through arrangement between this city and the Delaware Water Gap; Philadelphia Rapid Transit Company and the Philadelphia & Easton Railway Company have arranged traffic agreements, so that cars would run direct from Eighth and Walnut streets, in this city, to the Lehigh Valley Depot in Easton.

Thomas A. H. Hay, of Easton, President of the Northampton Traction Company, promises to effect a through arrangement on his lines direct to Portland, the nearest point to the Water Gap.

Phoenixville, Pa.—Ordinance granting a franchise to the Philadelphia Interurban Railway Company, which unanimously passed Town Council, has been signed by Burgess Thomas A. Evans.

Belton, S. C.—The Anderson Traction Company has decided to extend its railway from Belton to Pelzer; distance, nine miles.—G. B. Watson, Secretary.

Columbia, S. C.—William Elliott, Manager of the Traction Company, has asked Council for favorable consideration for the petition for privilege to double track on Laurel street.

Williamston, S. C.—Council has granted the Greenville Interurban Railway, Greenville, S. C., a franchise to construct a railway which will connect Greenville and Williamston.—H. H. Prince, Promoter.

Humboldt, Tenn.—A direct effort is being made to get the promoters of a proposed electric railroad running from Memphis, Tenn., to Jackson via Covington, which is on the I. C. Railroad, to also include Humboldt in its route; present proposed route includes Rembert Springs, Millington, Knoxville, Munford and Melrose.

Corpus Christi, Tex.—Council has been petitioned by M. Ucovitch for a franchise to construct and operate an electric street railway.

Greenville, Tex.—The Commercial Club is urging the building of the proposed interurban railway from Greenville to Dallas.—W. N. Harrison, Secretary.

Port Arthur, Tex.—A plan is being per-

fectured for the building of an electric car system in this city; H. J. Myers and S. A. Price, of Dayton, O., have been in the city looking over the situation as representatives of a syndicate of capitalists looking for investments, and they are prepared to invest about \$100,000 in a street car line here, if the necessary franchise can be secured.

Weatherford, Tex.—Council has granted a street railway franchise to J. T. Patterson and associates.

Ogden, Utah.—Big movements are under way with reference to street car facilities; a franchise is in preparation providing for right-of-way over all the streets of the city for a new street car system; this is to be a blanket franchise, similar to that now held by the Ogden Rapid Transit Company, which covers every street in the city except Wall avenue.

Spokane, Wash.—The Spokane, Wallace & Interstate Railway Company will soon extend system, including an interurban line from Wallace to Spokane, 85 miles, and branch lines from Wallace to Burke and Mullan, Ida.; work is to begin in June and the line will be rushed to completion.—President Hall.

Vancouver, Wash.—City has granted the Vancouver Traction Company a 25-year franchise for an electric railway line.

Vancouver, Wash.—The Vancouver Traction Company will soon begin making preliminary surveys to Felida and Orchards, where it is proposed to build extensions.—W. J. Patterson, President, Portland, Ore.

Hinton, W. Va.—James I. McCreery has secured a franchise for an electric railway to be built from Hinton to Red Sulphur Springs and Union, W. Va.; first section is along New River and Indian Creek to Red Sulphur Springs; distance, 20 miles.

Eau Claire, Wis.—The Chippewa Valley Railway, Light & Power Company will soon begin the construction of one-half mile of double track and a three-mile extension; considerable new or second-hand 70-pound T-rail will be purchased.

Grand Rapids, Wis.—F. J. Wood is promoting an electric line to run from Grand Rapids to the villages of Port Edwards and Nekoosa.

Welland, Ont., Can.—George H. Bugar is promoting an electric railway to provide local service from Welland to the lake shore; first part of the line will be built from the Grand Trunk to the Michigan Central and a second section from the M. C. R. to the Air Line; company will endeavor to get the first two sections in operation early this year and the third before the beginning of 1910.

BIDS RECEIVED AND CONTRACTS AWARDED

Minneapolis, Minn.—The Twin City & Lake Superior Railway Company probably will let contracts in April for building a double-track third-rail line from Minneapolis, Minn., northeast via St. Paul, Minn., and Superior, Wis., to Duluth, Minn., 130 miles; contracts have been let as follows: From the lower St. Croix River to upper St. Croix, 33 miles, to Westerdahl & Carlson, and from upper St. Croix to Superior, Wis., 60 miles, to Smith & Jones; track is laid from Minneapolis to Coon Lake, 25 miles; there may be two large bridges.—J. H. Thomas, Chief Engineer, 440 Railway Bldg., Minneapolis. Noted on May 28 and July 2, 1908.

Norfolk, Va.—The Tidewater Construction Company has received contract from the Virginian Railway to extend line 23 miles into the coal lands of Wyoming and Raleigh counties; cost, \$1,500,000.

BRIDGES

Montgomery, Ala.—Montgomery County citizens will vote March 25 on \$150,000 bridge and road bonds.

Texarkana, Ark.—City will construct two steel bridges; \$10,000 has been appropriated.

Pasadena, Cal.—Council has received a petition for the erection of a new and modern bridge at the east end of Columbia street.

San Bernardino, Cal.—City Engineer Sloan has presented plans and specifications for the extension of the concrete culvert at Eighth and D streets.

Denver, Col.—Plans have been approved by the Board of Public Works for reconstructing the east end of the Twenty-third street viaduct with steel; cost, \$150,000.

Washington, D. C.—Congress has passed and the President signed the District appropriation bill; \$10,000 is provided for the removal of the superstructure and substructure of the old Anacostia bridge provided that the unexpended balances of appropriations heretofore made for the construction of the new Anacostia River bridge and its approaches shall continue available during the fiscal year for all

necessary expenses to complete the bridge and its approaches; also \$85,000 for widening bridge across Piney Branch.

Tampa, Fla.—Citizens are considering bond issue for construction of bridges; plans and specifications are being prepared for proposed bridge to span Hillsborough River at Lafayette street.

Carrollton, Ga.—Carroll and Coweta County Commissioners are considering the construction of a steel bridge over the Chattahoochee River near Whitesburg.

Pocatella, Ida.—Funds are being raised for the erection of a bridge across the Snake River at Tilden.

Boonville, Ind.—Louis Meyer, County Surveyor, has submitted plans and specifications to the Commissioners for 21 new steel bridges to be built this summer in different parts of Warrick County; plans have been accepted and a meeting will be held soon, when preparations will be made to receive bids.

Elkhart, Ind.—The Elkhart County Commissioners have recommended the erection of a \$20,000 bridge over the Elkhart River at Jackson street.

Evansville, Ind.—The Evansville, Mt. Carmel & Olney Traction Company will soon receive bids for the construction of a combined traction and wagon bridge across the Wabash River.

Indianapolis, Ind.—Council has received ordinances for the appropriation of \$12,000 for bridges across the canal, at Thirtieth street, and across Pleasure River, at Emerson avenue.

Council Bluffs, Ia.—A new concrete bridge is to be built over Indian Creek at Eighth street this summer or in the fall; the bridge will not be of the arched pattern, but will have reinforced concrete beams and is expected to give more waterway than the present bridge does; approaches will have to be slightly raised, but not to a great extent.

Cloverport, Ky.—The Louisville, Henderson & St. Louis Railway will substitute cement work where wood is now in use for bridges, culverts, etc.; \$50,000 will be expended.—S. Stites, Chief Engineer.

Acushnet, Mass.—Town has appropriated \$3,000 for bridges and roads.

Lawrence, Mass.—Prof. Twaine of Technology, Engineer of the Central Bridge Commission; Hiram F. Mills of the Essex Company, Engineer of the mills, and Engineer Rowell of the Boston & Maine Railroad, are looking over the ground of the proposed central bridge site, with a view to studying the situation so that plans may be drawn which may satisfy all parties concerned in the construction of the bridge.

Newburyport, Mass.—Plans for the construction of the famous chain bridge, connecting Newburyport with Deer Island, the summer home of Mrs. Harriet Prescott Spofford, are complete and the Essex County Commissioners have forwarded them to the Harbor and Land Commissioners, who have ordered a hearing for March 11; plans filed by Robert R. Evans, County Engineer, and approved by Prof. George F. Swain, the consulting engineer, are for a modern bridge, suitable for all the requirements of present day traffic.

St. Paul, Minn.—The State House of Representatives has passed a bill authorizing \$100,000 bonds for constructing the Earl street and Third street bridges.

Omaha, Neb.—City Engineer Andrew Rosewater has prepared plans for a footway viaduct over the Great Western tracks south of Leavenworth street, on Eighteenth street.

Arlington, N. J.—The Arlington Board of Trade is considering the proposed bridge over the Passaic River between this city and Kearny; Town Surveyor Harry P. Kreiner made known that the Ellwood avenue site was the most acceptable to the Newark Board of Trade; bridge would reach the Kearny side at about Quincy avenue.

Alameda, N. Mex.—The Bernalillo will in the near future have two modern strong steel bridges across the Rio Grande at Barel and Alameda to replace the dilapidated wooden structures which have been maintained at ruinous cost for repairs for these many years.

Mineola, L. I., N. Y.—A bridge will be constructed over the railroad tracks at Mineola; cost, about \$80,000.—Engineer W. E. Sexton.

New York, N. Y.—The N. Y. & N. J. Inter-State Bridge Commission, 115 Broadway, is considering the construction of a bridge over the Hudson River; cost, \$30,000,000.—Boller & Hodge, Consulting Engineers, 1 Nassau street; Warren & Wetmore, Architects.

Seneca Falls, N. Y.—The officials and attorneys of the local trolley company will make application to the Public Service Commission for permission to construct a bridge across Cayuga Lake.—General Manager W. C. Gray.

Dayton, O.—Emergency bonds will be issued by the County Commissioners; pro-

ceeds of the same will be spent for the repair of the damage to bridges done by the flood; Commissioners estimate that an issue of nearly \$20,000 will be required to repair the damage, but the exact amount of the flotation has not yet been decided.

Dayton, O.—A petition, signed by property owners of West Carrollton, has been filed by the County Commissioners; the canal bridge in the village is becoming so aged that some much needed repair, about the extent of a new viaduct, is felt necessary.

Dayton, O.—Plans for a new girder bridge over the rail race at Ludlow street have been submitted to Council; cost, \$4,500.

East Palestine, O.—County Commissioners have rejected all bids for the erection of the substructure and superstructure of Bridge No. 40, a short distance west of East Palestine; new bids will be received on the same about the middle of the month.

Butler, Pa.—County Commissioners have decided, after viewing the premises, to substitute a new steel bridge for the present structure at Karns crossing, just over the Center Township line.

Slatington, Pa.—The Lehigh and Northampton County Commissioners are considering the construction of a bridge over the Lehigh River at Slatington; cost, \$150,000.

Williamsport, Pa.—Lycoming County Commissioners are considering the construction of a bridge over the Susquehanna River, between Newbury and Dubois town; estimated cost, \$130,000.

Chattanooga, Tenn.—The Chickamauga Park Commission is considering the construction of steel bridge in connection with roadway from St. Elmo, Tenn., to Rossville, Ga.—E. E. Betts, Engineer in Charge, 905 James Bldg.

Dallas, Tex.—Citizens will vote March 30 on \$175,000 bonds for remodeling the county bridges across the Unity River.

Granbury, Tex.—Hood County is considering construction of bridges.

Salt Lake City, Utah.—State Legislature is considering a bill appropriating \$35,000 for the construction of a bridge over the Green River, between Uintah and Emery counties.

Seattle, Wash.—City Engineer R. H. Thomson has estimated the cost of constructing the bridge at Eighth avenue South at \$355,000.

Huntington, W. Va.—Jas. A. Newell, of Newell, W. Va., is interesting local capital in the building of a highway bridge across the Ohio at this point; H. S. Corby, cashier of the American Bank & Trust Company, has requested him to submit a proposition in writing for the building of a bridge at or near Eleventh street; bridge will be built provided 6 per cent. bonds in the sum of \$300,000 be subscribed, if \$200,000 worth of bonds are subscribed with a stipulated time and \$600 subscribed for incidental expenses such as plans; bridge will cost about \$400,000.

Beloit, Wis.—The Board of Public Works has decided to advertise bids for material for paving the Central bridge with dry, white oak blocks; also bids for doing the work separately.

Waukesha, Wis.—Council has received plans and specifications for the new Broadway bridge; cost, \$4,500.

Kincardine, Ont., Can.—The Road and Bridge Committee has commenced the construction of permanent repairs to the Queen street bridge.

Peterborough, Ont., Can.—City Engineer Hay has prepared plans for the new Smith street bridge; structure will be of steel; cost, \$30,000.

BIDS RECEIVED AND CONTRACTS AWARDED

Chandlerville, Ill.—J. H. Jayne, of Monmouth, has secured the contract for the reconstruction of the steel bridge over the Sangamon River.

Moberly, Mo.—The Standard Bridge Company, Omaha, Neb., has been awarded contract by the County Commissioners, of \$10,050, for nine steel bridges for the county.

Port Clinton, O.—Contract for constructing superstructure bridge over Portage River on Monroe street has been awarded to Home Engineering & Constructing Co., of Canton, for \$3,102.—Henry Pfaffenbach, County Auditor.

Toledo, O.—Spirited bidding for the construction of a concrete bridge over Ten Mile Creek at Central avenue resulted in the County Commissioners getting offers considerably less than the estimated cost, \$23,500. The cost of the bridge complete, under the low bids, will be about \$16,000. R. W. Johnson was low in his offer for the superstructure, making three separate bids, the one according to the plans on file being \$8,597. Bumpur & Monaghan were low in their bid for the substructure, offering to do the work at about \$7,070.

Zanesville, O.—The Mount Vernon Bridge Company, Mount Vernon, has been awarded contract for remodeling C. & M. V. Railway bridge at Ellis Station; the contract calls for the removal of the under-supports of the bridge for a distance of 150 feet and the substitution of overhead steel spans.

Tulsa, Okla.—The Tulsa County Commissioners have awarded contract at \$13,256 to Central States Bridge Co., Indianapolis, Ind., for construction of thirteen new bridges.

South Fork, Pa.—D. F. O'Rourke, of Altoona, has secured the contract for the erection of an extension to the viaduct of the Pennsylvania Railroad at South Fork.

Franklin, Tex.—Robertson County will soon award contract for the erection of a steel bridge across the Brazos River; estimated cost, \$10,000 to \$20,000.—Ben C. Love, County Clerk.

Salt Lake City, Utah.—Davis & Heuser were the lowest bidders for the contract of building the new North Temple street aqueduct, their bid for reinforced concrete being even lower than the others for the plain concrete; tenders were opened by the Board of Works February 27; at the same time tenders were opened for the building of the conduits for the Salt Lake & Jordan canal over Parley's Creek and the culvert over East Mill Creek; Shea & Anderson were the lowest tenderers for this work and were given the contract, their bid for the Parley's Creek work being \$2,145.50, and for the East Mill Creek conduit, \$7,437.89. Other bidders for the two jobs were: For the East Mill Creek work, J. D. Hanley, \$8,369.50; P. J. Moran, \$9,513.99; McDonald & Mehlin, \$11,297.02; J. C. McGuire, \$11,312.16. Parley's Creek conduit, J. C. McGuire, \$2,698; J. D. Hanley, \$3,295; P. J. Moran, \$3,680; this is to be of concrete also. The other tenders were: North Temple street viaduct, P. J. Moran, reinforced, \$51,178.50; plain, \$51,175. James Kennedy, reinforced, \$52,462; plain, \$50,742; Blodgett Construction Company, reinforced, \$53,798.30; plain, \$51,147.70. Hanley, reinforced, \$55,060.60; plain, \$54,037. V. P. Strange, reinforced, \$57,023; plain, \$58,875. Shea & Anderson, reinforced, \$57,155.25; plain, \$55,510. McDonald & Mehlin, reinforced, \$58,855.50; plain, \$57,429.

Brillion, Wis.—The Town has awarded contracts to John Wenoyn, of Kaukauna, for the construction of three stone bridges over the Manitowoc River at about \$6,000.

MISCELLANEOUS

Birmingham, Ala.—J. F. Donahoo Company is considering purchase of concrete mixers.

Gadsden, Ala.—City has chosen a site on South Sixth street for the proposed abattoir.

Fort Smith, Ark.—The Board of Park Commissioners is urging purchase of three tracts for park purposes.

Pasadena, Cal.—Plans for the children's playground, which is to be established at the corner of Vernon avenue and Colorado street, the Carmelita grounds, have been approved by Committee appointed by the Board of Trade to further the playground proposition.

San Francisco, Cal.—An election authorizing an issue of \$4,000,000 in bonds, with which to build a new City Hall, will be called as soon as the Public Utilities Committee of the Board of Supervisors can outline the necessary preliminary work.

Bridgeport, Conn.—The proposition for the purchase by the city of the property on the south side of the east approach to the new Congress street bridge, owned by the Priscilla Lyons estate, has the endorsement of Mayor Lee; if the land is purchased it will be used for a public dock.

Hartford, Conn.—The Finance Committee has recommended a \$450,000 bond issue for a municipal office building.

Windsor Locks, Conn.—Citizens are urging the erection of a new Town Hall.

Washington, D. C.—Congress has passed and the President signed the District appropriation bill, carrying a total of \$10,679,165.49; \$5,000 is for the improvement and equipment of a Georgetown site for a playground; \$16,696.64 is appropriated and in addition \$83,303.36 of the \$85,000 appropriation for an administration building for the work house for males, is made available for the purchase of two 1,000-acre tracts of land, either in Maryland or Virginia, but widely separate, one for the erection of a new reformatory and the other for a work house; \$22,500 has been set aside for a new public convenience station under sidewalk on Ninth street between F and G streets.

Tampa, Fla.—City is considering a bond issue for erection of municipal hospital.

Augusta, Ga.—Commissioner Nisbet Wingfield is preparing estimate of cost of construction of levee to protect city in future from floods; plans are being pre-

pared; levee will be about 12 miles long; cost, \$1,000,000.—E. M. Harrod, Engineer, New Orleans.

Savannah, Ga.—County Engineer Brown submitted plans to Albert Wylly of Committee on Drainage for concrete floodgate to be built at outlet of Dundee Canal into Savannah River; cost, \$5,000.—Albert Wylly, Chairman Committee on Drainage.

Savannah, Ill.—City is considering a \$25,000 bond issue for the erection of a new City Hall.

Indianapolis, Ind.—Council has received ordinances for the appropriation of \$25,000 for equipment of the four proposed police sub-stations.

Kendallville, Ind.—Citizens are considering the construction of a crematory; cost, \$5,000.

Dayton, Ia.—Architects Albright & Bradford, Ft. Dodge, are preparing plans for a one-story \$3,500 Town Hall.—S. Bergquist, Town Clerk.

Louisville, Ky.—The Commercial Club is urging the construction of two subways on Fourth avenue; subways would be mere conveyance stations, such as are seen in all cities of the country the size of Louisville.—Fred W. Kelsker, President.

Louisville, Ky.—Citizens are considering the reconstruction of the old incinerator at Hancock and Kentucky streets.

Covington, La.—Architect Beck is preparing plans for erection of park pavilion; cost, \$2,500.

Baltimore, Md.—The Board of Awards will receive bids, March 10, for repair of west end of Center Pier, Back Basin, and west bulkhead of Block street, together with construction of small pile and timber pier.—Oscar F. Lackey, Harbor Engineer.

Baltimore, Md.—If the plans of the West Baltimore Business Men's Association and those of City Councilman Wienefeld materialize, Hollins Market will be enlarged and the present buildings put in first-class order.

Baltimore, Md.—Fire Board has selected Edward A. Preston, Building Inspector, to prepare plans and specifications for fireboat station to be erected on Pier 7.—Edward M. Parrish, President.

Cumberland, Md.—Council has taken steps looking to the establishment of a public playground in Cumberland; City has one public park, but it has no section for playground or athletic features.—Mayor Kean, President of the Council George A. Reinhard and Councilmen George G. Young and Thomas W. Koon, Committee.

Hagerstown, Md.—Citizens are urging the erection of a City Hall.

Gloucester, Mass.—The Board of Park Commissioners is urging an appropriation for improvement at Stage Fort Park.

New Bedford, Mass.—Council is considering the erection of a three-story dormitory addition to the almshouse.

Detroit, Mich.—The Department of Public Works has rejected all bids for covering roofs of the Eastern Vegetable Markets with prepared roofing; new bids will be asked.—J. J. Haarer, Commissioner.

Detroit, Mich.—The Special Committee appointed to investigate cost of automobiles used by city has instructed the Secretary to advertise for bids from garages for the maintenance and storage of the city machines.—Edw. Schreiber, Secretary.

Greenwood, Miss.—City is considering installation of garbage crematory.

Kansas City, Mo.—Citizens will vote April 6 on \$4,500,000 bond issue; \$250,000 to be used for Third Regiment Armory, \$75,000 for Battery B Armory, \$175,000 for art museum, \$50,000 for House of Correction and \$25,000 for tuberculosis hospital.—James L. Darnell, City Engineer.

Keene, N. H.—Mrs. Dort, widow of Major Obed G. Dort, has given the city of Keene and the Ladies' Park Association a tract of land at West Keene; tract is covered with timber and is intended for use as a wildwood park in connection with Wheelock Park and the Ladies' Park at West Keene.

Camden, N. J.—As the Court has laid aside the suit aimed at the vote in that city, by which the wharves and docks proposition was carried, Councilman Albert De Unger, Chairman of the Wharves and Docks Commission, of this city, will at once lay plans for the improvement of the city's water front.

Jersey City, N. J.—The Playground Commission, consisting of Alex. Christie, president, Daniel A. Dooley and John McArdie, recently appointed by Mayor Pierre Garven, have made plans for changing Annett Park into a playground.

Kearny, N. J.—Council will receive bids soon for the erection of a Town Hall; design of Herbert Davis, New York, has been selected.

Newark, N. J.—Bids will be received March 10, 4 p. m., for 300 evergreens, 500 arbor vitae, 200 deciduous trees and 1,500 shrubs and plants.—James Owen, County Engineer.

Orange, N. J.—City Engineer Frederic A. Reimer has been instructed to prepare specifications and advertise for bids for

90,000 to 100,000 gallons of road preservative to be used on the city streets during the coming summer.

Westfield, N. J.—Town is considering the erection of a \$75,000 Town Hall at Elm and Orchard streets; a bond issue is being considered.

Albuquerque, N. Mex.—Acting District Forester Earle H. Clapp has transmitted to the Albuquerque Park Commission plans for the new park proposed at that place; park will contain many pretty features, such as shady driveways, fountains and a playground.

Buffalo, N. Y.—After prolonged discussion as to proper location and matter of construction, the final steps will be taken very soon for the rebuilding of the old Franklin Street Police Station into a home for Station No. 1 and other city departments that were housed in the old headquarters.

Buffalo, N. Y.—Mayor Adam has approved the following bills permitting the city to issue bonds for the following improvements: Lighting City Hall by electricity, \$37,500; Swan street sewer, \$150,000; Hutchinson and Technical high schools, \$1,500,000; playgrounds, \$100,000.

Buffalo, N. Y.—Alderman J. S. Porter is urging the establishment of more small parks on the East Side; \$2,000,000 is available for park purposes.

Buffalo, N. Y.—The Polish-American Business Men's Association is urging the establishment of two small parks.

Freeport, L. I., N. Y.—Citizens are urging that land be purchased and a building erected or the purchase of a house already erected for municipal purposes.

Geneva, N. Y.—The Board of Public Works will purchase the Rose tract on the lake front for Lakeside Park.

Lockport, N. Y.—The Police Board is considering installation of the police patrol system.

North Rochester, N. Y.—Funds are being raised for the erection of a public hall.

Rochester, N. Y.—Secretary Pifer, of the Board of Contract and Supply, has been directed to advertise for the general sprinkling contract for 1909 in three groups; one group is of all the streets in which there are car tracks, and the Rochester Railway Company is expected to bid for this contract, doing the sprinkling by trolley cars; specifications, however, do not exclude any other bidder.

Syracuse, N. Y.—Common Council has ordered a \$65,000 bond issue for the remodeling of the interior of the City Hall and \$5,000 for the completion of the police and educational buildings.

Dayton, O.—The Servers have authorized the advertisement for bids for sprinkling all streets coming under the seven and nine year contracts for the coming summer; there are 52 streets affected by these contracts.

Dayton, O.—Council is considering the repair of the several rip-raps along Wolf Creek and the Miami River; cost, \$6,500.

Lima, O.—Council has instructed the Board of Service to advertise for bids for cleaning the paved streets.

Elk City, Okla.—Citizens have voted \$6,000 for a new City Hall and Fire Department building; bonds have been sold.

Portland, Ore.—Council has adopted a resolution providing for the issue of \$150,000 of bonds for the construction of crematories and providing for a garbage collection system; question to be submitted to the citizens at the coming election.

Butler, Pa.—Council has decided to erect a \$12,000 municipal building.

Coatesville, Pa.—Citizens are urging the fitting up of the tract of land known as Kurtz's Dam as a public park; a trolley line will be extended from North First avenue.

Ebensburg, Pa.—The County Commissioners have decided to begin the construction within a few weeks of a \$50,000 addition to the Cambria County Jail.

Erie, Pa.—Select Council has received the report of the Committee appointed to investigate the garbage systems of other cities; following is an estimate of the cost of installing a system of municipal collection and disposal: Grounds and buildings, \$15,000; equipment of plant, \$22,000; horses, wagons, etc., \$5,000; operating expenses, one year, \$12,000; total, \$54,000.

Erie, Pa.—City Engineer Briggs has submitted to Council an estimate of the cost of building a subway under the railroad tracks at Liberty street; cost, \$70,000.

Harrisburg, Pa.—A suggestion for the erection of a joint city jail and court house has been made to the County Commissioners by the special committee recently appointed by City Councils.

Scranton, Pa.—The Special Parks Committee has decided to present to Select Council a resolution which will authorize the purchase of four small parcels of land in as many sections of the city, to be used as public parks, under the terms of the ordinance which gave the city \$100,000 to expend for this purpose.

Scranton, Pa.—Council has passed an ordinance providing for \$18,000 bond issue for the erection of a police station.

Providence, R. I.—Council has passed resolutions toward the establishment of a public market.

Greer, S. C.—E. D. Green is promoting the establishment of a six-ton ice plant.

Nashville, Tenn.—Council has passed an ordinance appropriating \$1,100 for purchasing three sprinkling wagons.

Dallas, Tex.—Upon recommendation of Mr. Doran the Municipal Commission has granted J. C. Casler, assignee of the franchise granted to A. J. Brown et al., permission to begin the construction of an underground conduit on Jackson street, between Harwood street and the river.

Knickerbocker, Tex.—Tom Green County is considering construction of concrete causeway.—Engineer Hartman, San Angelo.

Midland, Tex.—The Attorney-General has approved the \$14,000 Midland County jail bond issue.

Texarkana, Tex.—City Engineer H. R. Carter has prepared plans for erection of proposed jail; cost, \$5,000.

Danville, Va.—The Board of Aldermen has adopted ordinances appropriating \$2,950.86 for the completion of the new jail upon motion of Mr. Patterson.

Norfolk, Va.—Controllers have recommended to the councils an appropriation of \$150 for the purchase and erection of street signs in the Eighth Ward.

Richmond, Va.—The Finance Committee has included in its budget a \$40,000 appropriation for the Street Cleaning Department for a new inclinator.

Wheeling, W. Va.—The Wheeling Playgrounds Association will fit up the East End Park for children.—R. B. Naylor, Secretary.

Niagara Falls, Ont., Can.—Estimates for \$14,000 worth of public improvements, which were left out of a previous report of the City Engineer, have been received by Council.

BIDS RECEIVED AND CONTRACTS AWARDED

Huntsville, Ala.—The first street sweeping contract that the city has ever awarded was, March 2, secured by Jesse F. Young, former President of the Council. Street sweeping has never before been a necessity, as there have been no paved streets.

Mobile, Ala.—A. D. Davis and John Cowley, butchers, of this city, have let the contract to a St. Louis firm for the installation of the proper machinery, to be placed in a building to be erected at Prichard's Station on the site of the old Maupin packing house plant; contract will be made with the city and county to have all stock to be killed for sale by butchers killed at the plant under the supervision of an inspector.

Mena, Ark.—The Board of Public Affairs has awarded contract to Lon Goff, of Mena, for erection of municipal jail, 20x28 feet, concrete, two apartments.

Pasadena, Cal.—The L. N. Goodwill Company was granted the contract for hauling garbage to the sewer farm for hogs at 50 cents per hour per team.

Kellogg, Ia.—The contract for the erection of Jasper County's new court house at Newton has been awarded to James Rawson & Company, of Iowa City, the contract price being \$132,315; twenty-four bids were filed.

Paola, Kan.—J. H. Petty has received the contract to build the new City Hall; the building is to be 41 feet 6 inches by 90 feet.

Battle Creek, Mich.—Burt Portland Cement Co., city, has been awarded a contract for furnishing 9,000 barrels of cement at \$1.45 per barrel in cloth sacks, with a rebate of 10 cents for returned sacks, or \$1.15 per barrel for cement in paper sacks.

St. Louis, Mo.—The Board of Police Commissioners opened bids for the new Eighth District Police Station, to be erected at Leffingwell and Laclede avenues, and the contract was awarded to Godfrey & Hirsch, contractors, in the Wainwright Building, for \$33,998, which was the lowest bid, the highest being \$36,900. The building is to be a handsome three-story brick building.

Omaha, Neb.—Bids have been opened for the construction of a new Court House, which will cost more than \$1,000,000. Contractors from all over the country bid on the job, and the lowest bidders were Caldwell & Drake, of Columbus, Ind. However, all bids were higher than the estimate filed and it may be that no contract will be awarded now.

Brooklyn, N. Y.—The contract for the new summer police helmets has been given to the Robert J. McFarland Company, a new hat making concern, of which the former superintendent of Knox's factory is the head; contract will be for about 8,000 helmets, which are to be ready before the annual parade of the police force; caps for

the mounted men and bicycle policemen, who do not wear helmets, will be supplied by Andrew Fitzgibbon, who has had the contract for some time.

Lockport, N. Y.—C. N. Stainthorpe & Company, on March 2, was awarded the contract for the sprinkling and cleaning of the improved streets for one year; there were only two bids before the Common Council, and they were as follows: Stainthorpe & Company, one year, \$4,300; three years, \$13,200. C. B. Whitmore & Company, one year, \$4,800; two years, \$9,000; three years, \$13,390.

Welsh, W. Va.—McDowell County has awarded contract to Smith Bros., architects and contractors, Huntington, W. Va., for erection of stone annex, 48x70 feet, to courthouse; plans and specifications prepared by W. E. & E. L. Shuffelbarger, architects, Bluefield, W. Va.

PATENT CLAIMS

913,034. Purification and Clarification of Water. William McMurtrie, New York, N. Y. Serial No. 435,851.

A process of clarifying and purifying water, which consists in causing a predetermined quantity of a reagent containing the phosphate radical to react in the presence of said water, with a basic substance adapted to form therewith a precipitate of phosphate insoluble in water, the phosphate radical being added in such proportions as to combine with all of said basic substance, and to form therewith a di-basic phosphate.

913,036. Sewer-Pipe Coupling and Connection. Mads Nelson, Canton, O., assignor of one-half to Frederick W. Pedersen, Canton, O. Serial No. 462,689.

In a sewer pipe coupling and connection the combination of a main sewer pipe, a lateral opening formed therein, a thimble adapted to be entered in the lateral opening of the main sewer pipe, said thimble provided with an annular flange upon its outer surface, a coupler secured to the thimble, said coupler provided with an annular shoulder and the outer end of the thimble located in the same transverse plane as that of the shoulder and a lateral pipe adapted to abut against the shoulder and the outer end of the thimble and means for connecting said lateral pipe to the thimble, substantially as and for the purpose specified.

913,040. Garbage-Receptacle. Peter W. Nicola, Leavenworth, Kan. Serial No. 438,436.

A fence provided with an opening and a top and bottom rail at the upper and lower ends respectively, of said opening, a cross bar bridging said opening at its upper end, a receptacle occupying said opening and supported upon the bottom rail of the fence and provided with handles at its rear side overlapping and bearing against the rear side of the fence, a lid hinged to the cross bar and closing said receptacle, and a spring-catch bearing against the rear wall of the receptacle at its lower end and adapted to be disengaged from the receptacle to permit the latter to be drawn outwardly through said opening.

913,131. System for Ventilating and Purifying Sewers and the Like. Edward F. Head, Sudbury, Ont., Can. Serial No. 400,576. Renewed July 14, 1908. Serial No. 443,513.

The combination with a sewer, of a ventilating shaft communicating therewith, a furnace having a foul air chamber, a valve for deflecting the foul air from the sewer through the chamber to said furnace, and a valve disposed within the chamber for cutting off communication between the sewer and the furnace.

913,460. Street-Sweeper. Frederick A. Bishop, Atlanta, Ga., assignor of one-fourth to John R. Jones, Atlanta, Ga. Serial No. 406,463.

A street sweeping machine comprising a frame, opposed rotary brushes mounted on axles adapted to rise and fall, hangers in which said axles are journaled, pivotal links connecting the hangers with the frame and permitting said hangers to rise and fall, and means for actuating said brushes including a motor which is geared to the machine wheels and adapted to simultaneously propel the machine and rotate the brushes, irrespective of the rising and falling movement of the brushes.

913,532. Sanitary Waste-Paper Can. Mary K. Miller, Pittsburg, Pa. Serial No. 448,482.

The combination of a can, a lid fitting loosely thereon, a metallic basket arranged within said can, legs carried by said basket for supporting the same in an elevated position within said can, the bottom of said basket having slots formed therein, the sides of said basket having slots formed therein and hand grips, and a slotted plate adapted to fit in said basket, substantially as described.

TRADE NOTES

Cast-iron Pipe.—Chicago: Prices unchanged, but further declines in pig iron would probably make lower quotations. San Francisco: Prices very firm, though no advances have been made. Birmingham: Decline in price of pig iron, it is believed, will have no effect on the market. Quotations: 4 to 6-inch, \$26; 8 to 12-inch, \$25; over 12-inch, average \$24.

Lead.—Trade is very quiet, and prices are slightly easier than last week. Desilverized lead can be had in New York at 3.95c., and in St. Louis at 3.80c. Sales have been made at 3.97½c. The American Smelting and Refining Company continues to quote shipment lead at 4c. in 50-ton lots.

Steel Bound Concrete Curb.—The Steel Protected Concrete Company, Real Estate Trust Building, Philadelphia, Pa., owners of the Wainwright patents for steel bound concrete curbing, are distributing to their friends a black wooden desk ruler with brass edge, printed in gold, containing their advertisement.

Anti-Rust.—F. L. Melville, 192 Front street, New York, N. Y., manufactures a preparation called "anti-rust," used especially for the protection of iron and steel commodities during transport and in the subsequent storage while waiting for use. The preparation contains no acid, vegetable or animal fats, hence will not go rancid or tarnish the surface to which it is applied. It is readily removed without the necessity of cutting with benzine or turpentine, simply by rubbing with waste or rag.

Dust Prevention.—Approximately \$150,000 is to be expended by the Scranton Electric Company to do away with the dust nuisance from its steam heating plant in Dix Court, Scranton, Pa. For more than a year the company has been attempting to discover some scheme whereby the fine dust emitted from the stacks of the plant can be done away with, or else prevented from blowing into the windows of central city office buildings. Various experiments have been tried from time to time. Among them were spark arresters on top of the smoke stacks. Five thousand dollars was expended in the trying of this scheme, which proved unsuccessful other than slightly minimizing the cloud of dust. The company's engineers now state that they have solved the vexing problem for a certainty. The scheme is to have the gas and dust from the boilers carried into a fire brick lined chamber through a duct. A spray will be located inside the chamber which will constantly throw out water, the water dampening the dust as it shoots into the chamber from the duct, causing it to drop its weight, while the gas will go through a large stack that is to be 60 feet in height. The plans for the scheme have already been completed by the company's engineers. Estimates are now being secured on the cost of the machinery, all of which will have to be especially constructed for the work.

Steel Water Mains.—For the purpose of gathering data about the general use of steel water mains Assistant Engineer Sullivan of the office of the Department of Water Supply, Brooklyn, N. Y., made a trip to Pittsburg recently. He has just returned and will make a report to Deputy Water Commissioner Cozier, which may result in steel water mains being placed in general use in Brooklyn.

Big Pumping Engine.—The Wisconsin Engine Company, of Corliss, has just completed a vertical, triple expansion pumping engine for the purpose of supplying the city of Atlanta, Ga., with water. This pump is the largest of its kind in the South, and its completion marks the culmination of one of the bitterest fights in modern commercial warfare, and one that lasted almost two years. The original cost of this engine was only \$133,700, but many times that sum was involved before the case was finally thrown out of the Supreme Court of Georgia. This remarkable commercial conflict was first begun at the City Hall of Atlanta, when proposals were received for an unusually large pumping engine, upon which there were seven bidders from all parts of the country. The contest finally narrowed down to two Wisconsin concerns—one, the Allis-Chalmers, of Milwaukee, which had built a large number of similar engines, and also built one of the engines now furnishing water for Racine, and the other concern the Wisconsin Engine Company, of Corliss, which had built but one small pump engine at that day. The bid of the latter company, although somewhat in excess of the former company's proposal, covered an engine which was shown to be a better one for the city of Atlanta to install, and the unanimous vote of the city officials was recorded in favor of the Wisconsin Engine Company. About a month after the work on the pump had been started at Corliss a mysterious suit was filed in Atlanta asking for an injunction to prevent the city from carrying out the contract with the Wisconsin Engine Company, which contract was claimed to be illegal, and at the same time a petition was also presented, which set forth the merits of one of the pumps which failed to get the award. The real instigators of this suit did not reveal themselves, but hid their identity behind an insignificant citizen who resided outside the city of Atlanta, but who happened to hold title to a small piece of property in the city. Investigation of this man's affairs revealed him to be almost bankrupt and he had even evaded the paying of his city business license. The action was, however, brought by well-known attorneys, and was argued at length in the courts. The lower court, however, refused to grant the injunction, whereupon the case was appealed to the Supreme Court of the State of Georgia, a proceeding which involved far greater expense than the means of the petitioner would allow, so it was very evident from this, as well as other developments of the case, that he was but a "blind." To await for a decision from the Supreme Court would have involved a prohibitive delay, which would be a very serious one to the city, which was short on water supply and needed this pump engine, ready for service, this coming summer. The problem, therefore, confronting the city officials and the Corliss company was to find some means of carrying out the work which was not subject to legal attack. Hugh T. Inman, one of the wealthiest cotton manufacturers in the South, who had served in the City Council, at this point stepped forward and offered to assume the city's part of the contract and pay for the pump and the city in turn recompense him from time to time. This was accordingly done and the work was continued. Meanwhile, the Supreme Court late last summer reviewed the case and dismissed it, refusing to take it under consideration for a decision.

Big Water Project.—Announcement that the Neversink Valley Water Company, Middletown, N. Y., has been incorporated with a capitalization of \$10,000,000 has created new interest in rumors that Brooklyn or New Jersey authorities are endeavoring to control the supply in that part of the State. The suit brought recently by the Attorney-General of New Jersey to prevent the East Jersey Water Company from using the water of the Passaic River at Little Falls is believed by some to have forced the East Jersey company to look for a new supply. It is asserted that the New York State authorities will not permit the diversion of the Neversink Valley streams to New Jersey. The president of the company is Dr. H. T. McBride, of Middletown.

Setting Bridge.—The Stroebel Construction Company, of Chicago, accomplished what is considered a remarkable engineering feat when it moved into place the new 450-ton steel bridge for the Baltimore & Ohio Railroad across Ridley Creek in just four minutes. At the same time the old tower-like structure which has done service for the past 22 years, was moved out of place on to heavy wooden work and trains could have been run over the new structure a few minutes thereafter, if any had been due.

Reinforced Concrete Chimneys.—The Weber Steel Concrete Chimney Company, Marquette Building, Chicago, Ill., is the largest concern in the world making a specialty of chimney construction. The foundation of a Weber chimney is comparatively light and made of concrete. The steel reinforcement consists of two networks, usually made of T-steel of small size. The distances between the bars of these networks are different according to size of chimney and bearing quality of ground. The bars for the lower network are placed diagonally, and the bars for the second network, about 4 to 6 inches above the first one, run parallel to the sides. The vertical bars forming the reinforcement of the chimney proper also go down into the foundation, and a number of these bars are bent in order to secure perfect anchorage for the chimney. The chimney shaft consists of two distinct parts, the lower double shell and the single shell above, which are united at the offset. The thickness of the inner shell is generally 4 inches; that of the outer varies from 6 to 12 inches, according to the height. Between the two shells is a circular air space 4 inches thick. The inner shell protects the outer from heat; the outer shell protects the inner from effects of the weather and takes up the strain caused by wind pressure. Weber chimneys are used by a number of city plants of various kinds, among them municipal buildings in the following cities: Eldora, Ia.; Waverly, Ia.; Lansing, Mich.; Clarksdale, Miss.; Cleveland, O.; Toledo, O.; Montpelier, O.; Oklahoma City, Okla.; Galveston, Tex.; Houston, Tex.; Dallas, Tex.; Hinton, W. Va., and Hartford, Wis.

Lighting Companies Profitable.—The American Gas and Electric Company, which controls about a score of public service companies in the East and middle West, in its report for the quarter ended December 31, 1908, shows the earnings of its operating companies were \$652,364, an increase of \$112,002 over the corresponding period of 1907. After providing for the dividend on the preferred stock and all other expenses and charges the surplus for the quarter is \$66,519, as compared with \$22,463 the previous year.

PERSONALS

BERNARDI, JOSEPH H., City Treasurer of Schenectady, N. Y., died February 24.

BRANDEIS, CARL, Omaha, Neb., recently appointed Commissioner of Fire and Police, died February 26.

BROWN, LE GRAND, Rochester, N. Y., Consulting Engineer, will remove to San Francisco, where he will open an office.

BURKE, J. T., Boise, Idaho, who has been with the United States Reclamation Service for several years, and has recently been Engineer of the Sunnyside Project, near Yakima, Wash., has resigned from the service and has engaged in consulting work in Boise, Idaho.

CAUTHORN, E. B., City Engineer, of Columbia, Mo., has resigned.

COOK, D. N., Superintendent of the Water Department, Salem, Mass., was unanimously re-elected for 1909, this being his fifth consecutive year in the office.

DALE, CHARLES S., Elwood, Ind., has been appointed Superintendent of Police, succeeding J. N. Nuzum, resigned.

DAVIS, JAMES, Baltimore, Md., Councilman since 1903, died February 28.

DEMPSTER, O. J., City Engineer, Little Falls, N. Y., has been re-elected.

DRAKE, HENRY, Civil Service Commissioner of Philadelphia, Pa., has been re-appointed for five years.

EVANS, ASA, Vincennes, Ind., has been elected Superintendent of Police.

GAFFNEY, L. V., Concord, N. C., has been elected Superintendent of Water and Lights of Gaffney, S. C.

GARDNER, B. G., Town Marshal of Oakridge, La., was shot and killed February 28, when making an arrest.

GAST, ERNEST A., Assistant City Engineer of Cincinnati, O., was married February 27 to Miss Irma D. Shelzhaus.

HAM, W. H., Boston, Mass., Member American Society of Civil Engineers, has resigned as Chief Engineer of the General Fireproofing Company to take up the Department of Concrete Engineering with the firm of Hollis French and Allen Hubbard, Consulting Engineers, Albany Building, Boston, Mass., specialists in hydraulic and power development work, heating, ventilating, electrical engineering and concrete structural design.

HARRISON, MAJOR CHRISTOPHER, City Engineer of Everett, Mass., has been appointed for the eleventh consecutive year.

HERTZ, A., Terre Haute, Ind., has been appointed to the Park Board. Other members are: Joshua Jump, Daniel F. Reagan and John G. Heintz.

HILL, JOHN W., Cincinnati, O., has been retained as Consulting Engineer by a committee of the leading property owners of Cincinnati, which has been organized to oppose retroactive clauses in the new building code of the city.

KELLY, PATRICK J., Exeter, Pa., has been appointed Chief of Police. The new Council organized as follows: President, Joseph Tillman; Secretary, James E. Toohey; Chief of Police, P. J. Kelly; Street Commissioner, Hugh McGuire; Treasurer, Henry Kromelbine, Sr. The personnel of the Exeter Council for the coming year is as follows: First Ward, Fred Kromelbine, Sanford Geddes and Mr. Tillman; Second Ward, B. Berkowitz, George Gustitt and Thomas Taylor; Third Ward, James Van Why, Joseph Walsh and George Dworksi.

KELSEY, FRANK C., Consulting Engineer, Tacoma, Wash., has signed the contract with the city to superintend the construction of the municipal power plant.

LAMBERTON, ALEXANDER B., Rochester, N. Y., President of the Park Board, has

refused to accept the compensation of \$1,200 voted him by the Board.

LAWLOR, DANIEL W., Mayor of St. Paul, Minn., will address the Volunteers of St. Patrick March 17 at Moore Theater, Seattle, Wash.

LOUGHMAN, GEORGE W., former Mayor of South Bend, Ind., died February 28.

McLIMONT, A. W., Electrical Engineer of the New York Public Service Commission, First District, New York, N. Y., has resigned to become General Manager of the Chicago & Milwaukee Electric Railway.

McCALLUM, A. F., of Toronto, has been appointed City Engineer of Hamilton, Canada, succeeding E. G. Barrow, who is retained as Consulting Engineer.

MALONEY, PETER J., North Bend, Wash., has been elected Mayor. Other officers elected are: E. Catching, W. C. Weeks, Charles Thaldorf, Fred Damburat and A. R. Mason, Councilmen; E. J. Seigrist, Treasurer.

MOORE, DR. JAMES W., Professor of Mechanics at Lafayette College, Easton, Pa., since 1872, died suddenly on February 28.

PIEL, HERMAN F., Vincennes, Ind., has been elected President of the Metropolitan Police Board. The other new member of the Board is Charles L. Kuhn.

POTTER, ALEXANDER, Consulting Engineer, New York City, delivered an address in Indianapolis, February 19, before the Commercial Club and Board of Trade on "The Growth of the Sewage Disposal Idea in America; What Constitutes Proper Disposal."

REIFSNYDER, LYMAN B., Pottstown, Pa., has been appointed Chief of Police.

SHEA, HUGH, Wilkes-Barre, Pa., the oldest city employee, has been appointed Asphalt Inspector.

THATCHER, JOHN BOYD, Albany, N. Y., formerly Mayor, died February 25.

THORNE, W. FOSTER, Mayor of Woodstock, N. B., died February 26.

WALMSLEY, D. C., Indianapolis, Ind., Smoke Inspector, has resigned.

WAGNER, FRED J., Rome, N. Y., Resident Engineer of the New York State Barge Canal, will succeed Fred W. Sarr as First Resident Engineer of the Middle Division of the State Engineer's Department, at Syracuse.

WARD, GEORGE MERRITT, has resigned his position with J. G. White & Co., of New York City, to become General Manager of Construction of the Suburban Construction Company, of the same city.

WATERS, THOMAS J., Chicago, Ill., Chief Engineer of the Chicago Board of Education since 1884, died on February 25.

WEATHERS, E. B., Ellston, Ky., has been elected Mayor, succeeding J. T. Penick, resigned.

WELKER, W. F., has been elected Mayor of Vernon, Ind. Other officers elected are: Marshal, Harry Thicksten; Recorder, L. D. Hamrick; Councilmen, First Ward, John Swinsher; Second Ward, Joseph W. James; Third Ward, A. G. Cotton; Nicholas Extell, Democrat, was chosen Treasurer.

WHITEHEAD, PROF. J. B., Baltimore, Md., of Johns Hopkins University, presented a paper on March 6 before the Engineers' Club of Baltimore on the electric operation of steam railroads.

The following were elected Mayors in Maine cities March 1:

Auburn—Irring L. Merrill.*
Bath—John S. Hyde.
Eastport—Walter J. Garnett.
Ellsworth—Frank F. Simonton.*
Gardiner—Charles H. Gray.
Hallowell—Dana C. Skillin.*
Lewiston—Frank A. Morey.*
Rockland—Albert C. McLoon.
South Portland—Fred G. Hamilton.*
Saco—Elroy H. Mitchell.
Waterville—Frank Redington.
* Re-elected.

PROPOSALS

BRICK PAVING

Kingston, N. Y.

Sealed proposals for grading of streets, regulating, furnishing and resetting curbs and for paving with repressed vitrified paving brick, first quality block size:

Broadway, from Spring street to the northerly curb line of Albany avenue;

Main street, from the westerly line of the present pavement at Fair street to the westerly crosswalk at Wall street;

Wall street, from the southerly crosswalk at Main street to North Front street; and

North Front street, from the westerly crosswalk at Fair street to the westerly curb line of Crown street, a total of about 53,500 square yards.

Are invited and will be received by the Common Council of the city of Kingston, N. Y., at a meeting of said Common Council to be held in the Common Council Chamber, City Hall, in said city, on Friday evening, March 19, 1909, at 7:30 o'clock.

Notice to contractors for their information, form of contract, form of bond and guaranty bond, plans and specifications may be seen at the office of the City Engineer and City Clerk.

Proposals must be on forms supplied by the city and must be delivered to the City Clerk before 7 o'clock Friday evening, March 19, 1909.

The Common Council reserves the right to reject any or all bids or proposals not deemed for the best interests of the city, at any time before the contract is actually signed.

By order of the Common Council of the city of Kingston, N. Y.

Dated February 19, 1909.

DAYTON MURRAY,

(10) City Clerk.

ELECTRIC LIGHTING

Sumter, S. C.

Bids will be received until 12 o'clock, noon, Tuesday, March 23d, 1909, for furnishing the City of Sumter with fifty enclosed incandescent are lights, 2,000 nominal candle power. All within a radius of one mile from center. All night and every night service. Also prices on additional lights as needed, above fifty and not exceeding eighty. Contract to run ten years from Nov. 1st, 1909.

Address C. M. HURST,
Clerk and Treasurer.

ENGINEERING EXAMINATIONS

City Engineer.—Applications will be received until March 15 by E. Roberts, City Clerk of Wetaskiwin, Alta., Canada, for the position of City Engineer. Applicants are to furnish references and state experience respecting sewers, water works, street paving and concrete sidewalks. Applicants to state salary required. Services to commence about April 1.

City Engineer.—J. H. Trusdale, City Clerk, Saskatoon, Sask., Canada, will receive applications for position of City Engineer until March 23.

Highway Engineers, Etc.—The New York State Civil Service Commission will hold examinations on March 27, 1909, for the following positions: Assistant Steam Engineer, State Institutions, \$40 to \$50 a month and maintenance; Chief Engineer, Westchester County Court House, \$1,500; Clerks and Junior Clerks (women), Erie County service; Electric Meter Inspector, Public Service Commission, \$1,080 to \$1,200; Elevatorman, Department of Public Buildings, \$900; Highway Inspector, all counties except Kings, New York, Queens and Richmond, \$3.50 to \$4.50 a day; Physical Instructor (woman), State Institutions, \$540 and maintenance; Statistician, State Departments, \$1,800 to \$2,400; Tariff Clerk and Typewriter, Public Service Commission, \$1,200 to \$1,500; Typewriter Copyist, Erie County, 4 cents per folio. The last day for filing applications for these positions is March 20. Address Charles S. Fowler, Chief Examiner, Albany.

DISPOSAL OF GARBAGE, ASHES AND OTHER REFUSE

City of Easton, Pa.

Sealed proposals will be received by the Department of Garbage Disposal for the City of Easton, Pa., at the office of the City Clerk, City Hall, until 8 P. M., of Monday, March 22, 1909, and will at said hour and place be publicly opened and read, for furnishing and erecting on the property of the City of Easton, Pa., a plant for the disposal by incineration of all garbage, ashes and other refuse collected in the city and delivered at the plant.

The approximate amount of garbage, ashes and other refuse to be treated is either twenty-five (25) or thirty-five (35) tons per day and contractors must bid on two plants, one having an actual capacity of twenty-five (25) tons per day and the other an actual capacity of thirty-five (35) tons per day.

The City Will Erect But One Plant

General Specifications will be furnished at the office of the City Engineer, City Hall, Easton, Pa., but bidders are expected to personally examine the proposed location and submit their own plans and detailed specifications, which must include the requirements and guarantees mentioned in the general specifications.

No bid will be considered unless accompanied by a certificate, showing the successful operation of at least one other refuse destructor similar to the type proposed in the bid submitted. Each proposal must be accompanied by a certified check for \$1,000 payable to and to be the property of the City of Easton, Pa., if the proposal is not carried out.

The successful bidder shall furnish a bond acceptable to a joint convention of Councils in the sum of the contract price of the plant, within ten days after the contract has been awarded to him.

The right to reject any and all bids is reserved.

JOHN McNEAL,
City Engineer.

ERVIN F. SCHUG,
Chairman Department of Garbage Disposal,
Easton, Penna., March 1, 1909. (10-11)

STEAM PUMPS; STANDPIPE; PRODUCER GAS PLANT

Dowagiac, Mich.

Bids are wanted on steam pumps, all types, for water works system, on changing present water works system to take water from Pine Lake, including the erection of standpipe, giving capacity and cost of latter; also on a producer gas plant to be erected on site of present water works station; same to be separate from present plant and to guarantee to include percentage of saving of maintenance and operating expenses over present system. Bids to be opened March 16, 1909.

CHAS. ANTISEL,
Clerk.

(10)

REINFORCED CONCRETE BRIDGE

Geneva, Ill.

Sealed proposals will be received at the office of the City Clerk until 7:30 P. M., March 15, for the construction of a reinforced concrete highway bridge over Fox River at State street.

All work to be done and materials supplied according to plans and specifications on file in the office of the City Clerk.

The work will be paid for in cash as the work progresses, in accordance with the specifications.

All bidders will be required to enclose a certified check in the sum of fifteen hundred (\$1,500) dollars as a guarantee of good faith.

Gravel and filling will be supplied by the City of Geneva at the same price to all bidders. Inquire of the City Clerk.

OSCAR NELSON, City Clerk.